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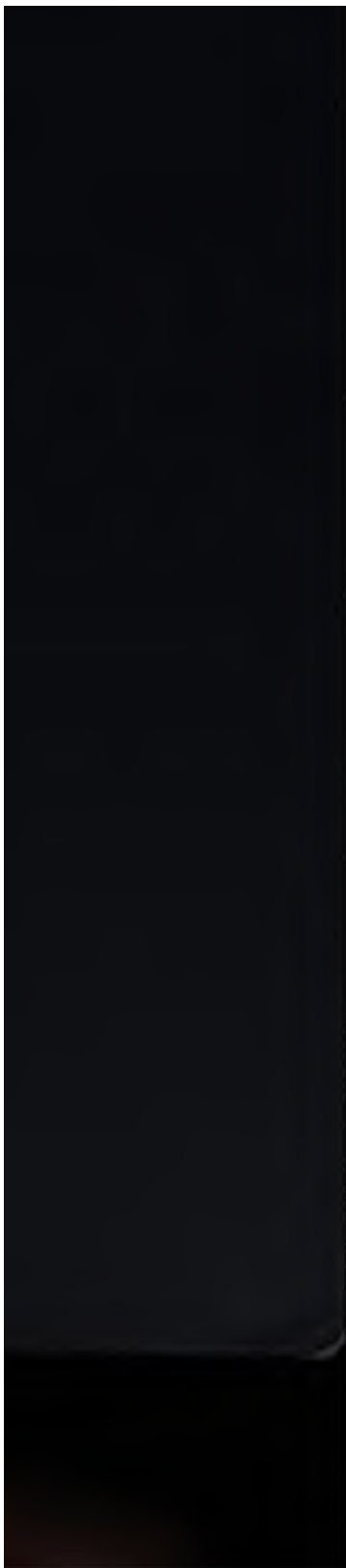
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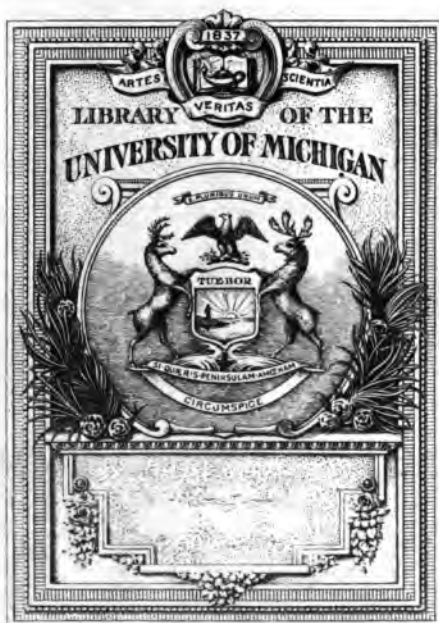
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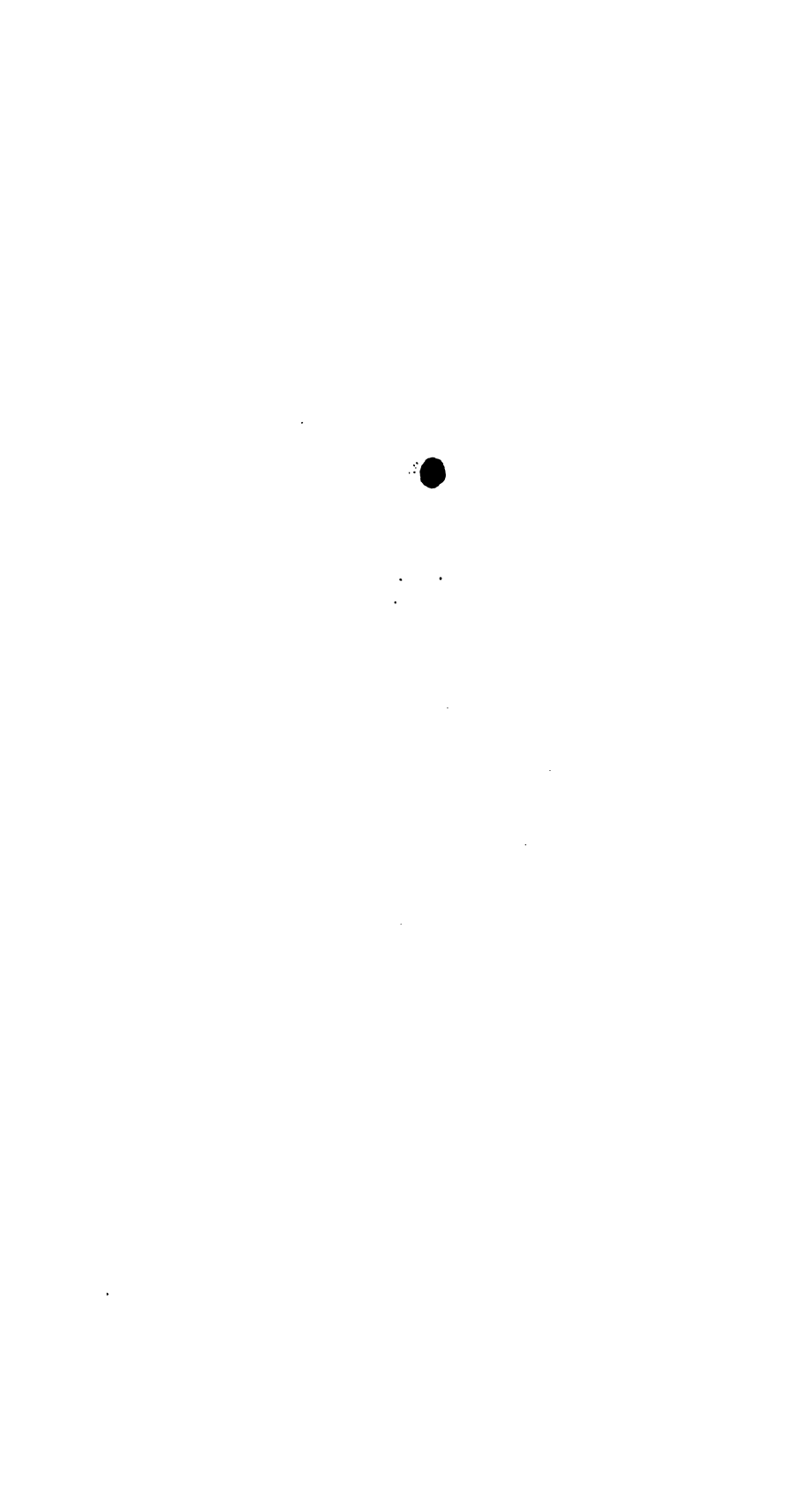




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MAKING LIFE WORTH WHILE





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MAKING LIFE WORTH WHILE

A BOOK ON
HEALTH AND MORE

BY
HERBERT WESCOTT FISHER



NEW YORK *Th.*
DOUBLEDAY, PAGE & COMPANY
1910

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DEDICATION

"SCIENCE AND THE GOLDEN RULE WORKING TOGETHER, WILL DO ALL FOR MAN THAT EVER CAN BE DONE; BUT WHEN ALL IS DONE THAT CAN BE DONE, THERE WILL STILL BE SHORTCOMINGS."

— *Admonishing words of the Author's Mother*

TO WHOM THIS BOOK IS
AFFECTIONATELY
DEDICATED

ACKNOWLEDGMENTS

ALTHOUGH this is no technical work, parts of it have been laid before several men of technical standing. None of these, except as specifically noted below, is to be held accountable for any particular view which I have ventured to put forth; but their collective observations have contributed, I believe, to make my general premises secure. To these friends, and to others less technical, I would acknowledge my gratitude and the reader's debt: to my cousin, Ralph W. Wescott, for several suggestions as to form; to my friend, Harold H. Bowman, for reviewing the form of the entire manuscript; to Dr. Jay W. Seaver, of New Haven, for criticising the chapter on "Nervines;" to Dr. Richard C. Newton, of Montclair, for criticising nearly all those parts that trench upon science; and to my brother, Professor Irving Fisher, for so many suggestions, both formal and substantive, that it is no longer possible to identify them all. I am especially indebted to him for working out the "Floating Glut" idea of Chapter IV.

A PREFATORY WORD

ADDRESSED TO A CERTAIN FELLOW

Dear Boy: The last time we spent the noon hour together, I surprised you with a fresh subject of debate. At first you were dumb. But before my unwonted eloquence could reach a dangerous pitch, you withdrew the meditative weed from your lips and, using it like one leading an orchestra, delivered yourself as follows: "Oh, well, of course I do not deny that in this business of healthy living, a certain degree of progress remains to be made. But, man, why be so grim and so unflagging in the pursuit of it? Health is not the only consideration. Do save time for a few of those things which really *make life worth while*."

Accordingly, I have done my best. In these pages you shall find the conclusion of my argument. And if it seem like adding insult to injury that, having made off with your phrase, I should disappear with it behind the covers of a book,

where your swift rejoinders cannot follow, why, that is a circumstance which, I confess, only affects me with a keener sense of security — not to mention an occasional spell of the “dry chuckles.”

H. W. F.

MONTCLAIR, June, 1910.

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PART ONE
THE WHOLE PURPORT

*“Our Speculations can scarce ever be too
fine, provided they be just.”*

— DAVID HUME.

I

PLASTICITY

A PROFESSIONAL magician once rolled a large ball behind a screen. Then he stepped behind the screen and rolled the ball back again. First he caused the ball to disappear; then he caused it to come again into plain view. Among the spectators there was not one — not a man, woman, or child — but understood what had happened. None imagined that when the ball passed out of sight it ceased to exist, or that its reappearance was due to an act of spontaneous creation. “But,” said the smiling performer, “this is all that happens in my most puzzling sleights, and for these you would accuse me of an alliance with the devil!”

Now, one of the noblest concerns of the human mind is to detect the legerdemain of Nature; to prove that the place where a phenomenon first breaks into the circle of human observation is not where it began, and that the place where it breaks out again is not where it will end. Since time immemorial, men have been engaged in mak-

ing these discoveries, but we seem not yet to have discovered the essential humour in our goings on — the eternal pleasantry with which the Universe keeps tripping us up. From the ape to the astronomer, the whole history of our ascent is paved with stultifications. It is not merely that every day some obvious assumption is compelled to give way before some critical finding of science; but that every day we greet these, our own conquests, with incredulity. True, in regions to which we are entire strangers — that is, in regions where there are no first impressions to be corrected — we turn a gracious face upon the critical findings of science — hail them afar with even premature credulity; but not so in the places where we take our walks and transact our daily affairs. Toward radium and the x -ray, it is true, we are all smiles. They are new and astonishing, but not impertinent. They do not contradict us. When, however, we are told that the earth on which our feet are flatly planted is not flat; that the sun which we see daily traversing the sky does not traverse the sky; that the colours which we behold [plastered all over the objective world are not in the objective world at all; that laziness (at least, among the poor whites of the South), which so often gets on our nerves and gives us an excuse for abusing somebody, is not a mere human contrariety — then it is that

our patience oozes out; and then it is that the following series of manifestations occurs: ridicule; then wrath; then persecution; then sullen reticence; then a listless acquiescence in the inevitable; then the sprightly declaration that "we always knew it, anyhow"; finally, a redoubled confidence that we can never be fooled again, since no obvious assumption remains throughout the length and breadth of the Universe which can ever yield to another critical finding; then another obvious assumption critically impeached; and then the same cycle of manifestations repeated — from ridicule to restored confidence — while the Universe holds its sides.

Nor is this yet the cream of the joke. The world-old tussle between obvious assumptions and critical findings is not carried on wholly between two camps, men of science in one and rustics in the other. The real clash is between two sides of human nature, both of which may coexist in the same individual. Even a man of science will be found clinging pathetically to the obvious view of something. It is only in his own department that he will not take anything for granted. The familiar objects which daily surround him while he is doing his stint at demolishing some chosen phase of the obvious — these he himself must meanwhile accept at their face value; he has not

the time to do otherwise. Unless he keeps a wonderfully level head, therefore, he will end by scoffing at those who question these familiar objects, just as the common folk of the world scoff at his own investigations. In a word, the first impressions of every man, from scientist to fool, are stolid just in proportion to the nearness of the objects from which they take birth. We seem to have begun with our critical faculties long ago, adventurously groping for the perimeter of the Universe, and ever since to have been drawing them in — a net in whose beneficent meshes last of all to capture ourselves. To the interested spectator, the latest unfinished manœuvres in this serio-comic game are thrilling to watch. The scientific net has already reached the earth; on the earth, it has successively overtaken our orchards, our barnyards, our babies, our weaker brothers. But with our weaker brothers it is making a long halt. The difficulty with the weaker brothers seems to be that they refuse to step into the net. They refuse to listen to the voice of our lofty expostulations. It is by the power of prediction — the ultimate triumph of science — that we would persuade our weaker brothers to mend their ways; and it is for treating too cavalierly our scientific predictions that we linger so long and so righteously over their infirmities. “Do as you

are doing," we say, "and you will taste bitter sequels: drunkenness, vice, or swift insanity." And all the time, we ourselves are falling prey to corresponding vices of our own — rheumatism, debility, gout, apoplexy, Bright's disease, premature old age, and gradual instead of swift insanity. *Here is the cream of the joke.* The only difference between our alleged weaker brothers and ourselves is that the perversity of the former relates to predictions a year in advance, whereas our own perversity is a bit more subtle, relating to predictions twenty years in advance. This difference between one and twenty is precisely the difference between delirium tremens and gout. As for bitterness of sequel, which of us has the advantage? The drunkard raves: the victim of inflammatory rheumatism writhes and shrieks. As for the morality in the case (if such an element be involved at all), perhaps the advantage should even be conceded to the weaker brothers. They yield joyously to big temptations which slay **swiftly**; whereas I, like a kind of æsthetic miser, yield only to temptations ineffably paltry. I sit before my sublimated self-indulgence, and after enough sighings and protestings to beguile the amused spectator, I fall to, complete the gorge (or whatever it is), and sit back purring. "After all," I say, "this is one of the few indulgences I

allow myself. If it be a transgression, it is a negligible one." And yet, that nothing is negligible is the very first principle of scientific prediction. Films of gossamer, if stacked in sufficient numbers, could obliterate the world. The breathing of infants, if sufficiently multiplied throughout the stellar spaces, could blow out the sun. These are fine reasonings; but "our speculations can scarce ever be too fine," says David Hume, "provided they be just."

Coming in, then, from the stars to the earth; from the earth to man; from man-in-the-mass to the upper-class-of-men, we arrive at that precise foible in the bosoms of the upper class of men — "the negligible transgression" — the sweeping whereof from the field of obvious assumption to the field of critical finding is the labour to which this book is dedicated. It is a Herculean labour. Herculean in proportion as the thing to be dislodged is familiar, old, reputable, and paltry.

Let us proceed at once to an application of this inexorable law of cumulative effects. To bring it out with clear edges, let us select, first, a piece of mechanism; and then transfer our conclusions from that to the more intricate problem of the human body.

Consider, then, the story of twin automobiles,

which issued from the same factory on the same day and fell into the hands of two friends of diverse temperaments. Between the friends it was agreed that in opposite territories they should run their respective cars, each for a circuit of two hundred miles; and, at the day's end, should meet again and compare notes. This plan was put in execution. The first man chose a level road; the second, a rough one. The first took all things cautiously. His starts and his halts he came at gradually, and every inequality in the road he glided over with gentleness. But the second man was a dare-devil. He started like an explosion, halted like a collision, and dashed upon every thank-you-marm like a blind fury. When evening arrived, and the two had met and each had heard the other's story, the first man accused the second of abusing his machine. "At this rate," said he, "it will go to pieces in no time." The second man challenged the first to prove his assertion. Accordingly, both kissed the earth and made an exhaustive examination of both cars. And, lo! they found: not a hair's breadth of difference. In no bolt, bar, shaft, or valve, was one car apparently worse off than the other. They sent for an expert; but even he could find nothing amiss with either car. In fact, the mud having been washed off, the expert was unable even to

guess which of the two cars had suffered the alleged abuse. "Just the same," said the first man, "keep up your dare-devil tantrums and your car will find the scrap-heap, not days, but years ahead of mine." And of course it fell out as he said. Nor was it the last day's violence more than the first that wrought the eventual mischief. Not even the lightest jolt in the first day's journey left any part of the machine in precisely its original condition, though it took five hundred jolts, repeated for fifty days, to produce an obvious effect.

But this is not the whole story of the unhappy machine. Besides the vertical violence of uneven roads, it had often to suffer the lateral violence of sudden swervings to avoid obstacles or turn corners. Moreover, it was often compelled to go for days at a stretch without sufficient lubrication. Sometimes it was allowed to stand in the rain — an accumulation here, of abuses; and each abuse itself cumulative, and each avoidable.

Were avoidable abuses all, happy would be the lot of an automobile. But, alas! the owner of this machine had invested in it, not alone for junketing, but also for business. And his business, without the pursuit of which he could not continue to live, sometimes took him into strange countries, where the whole environment was

hostile to automobiles. Even when the car was at rest, it must often stand on a hillside under the crooked strain of its own weight; while out of the very atmosphere, rain or shine, there exuded corrosive influences which bathed the whole car in silent decomposition.

One more category of abuse and we shall have done with this machine. Sometimes it had to be mended. And at every blow of the hammer, administered to correct one condition, a new increment of strain was communicated to some other part of the machine. It was a different kind of strain — lateral, perhaps, whereas most of the others had been vertical. But both of these strains, converging upon one of the central and most essential bolts, conspired in the common effect of loosening that bolt, until it, too, came in for its share of correction. And now began a vicious circle. Every mending was efficacious as far as it went, but left a residue of damage. The effect of one mending had eventually to be corrected by another. And so it went round until the endurance of the machine was diminished below the capacity for further mending, and it had to be thrown away.

Observe, now, the essential characteristic of the machine, namely, its unity. Lateral strains and vertical were different in kind, different in measure, different in point of impact, and yet all were

destructively convergent upon every part of the mechanism. Indeed, it was this very character of mechanical unity which gave the machine both its beauty and its utility. Unless every force, to whatever part applied, could at once communicate itself to every other part, the motive power, when applied upon the driving wheels, would have been without effect upon the forward wheels; all would have gone different ways, and disintegration occurred complete at the very first effort to move. *Salvation and doom found their secret in the same quality.*

Before pointing out the inadequacy of the automobile as a figure of speech for the human body — especially in the incapacity of the former to suffer *pain* — let us apply the analogy as far as it will go.

Like the repetition of the mechanical strain five hundred times a day for fifty days, comes the respiration of impure air eighteen times a minute, eighteen hours a day for twenty years. Like the addition of lateral strains to vertical, together with neglected lubrication and neglected shelter, comes the rest of the catalogue of “negligible transgressions” — foods preserved by injurious chemicals; teeth irregularly brushed; stuffy sleeping-rooms; living-rooms excessively upholstered; carpets full of dust; domestic atmosphere at once

motionless, furnace-dried, and kept at high temperature; clothing impervious to sun and air; insufficient baths; insufficient exercise; late hours; overwork; overeating; underdrinking (of water); eating and drinking together, instead of separately; and patent medicines; not to mention, in the case of woman, the strangling of her vital organs by the stylish harness of society. Moreover, to these avoidable abuses must be added the unavoidable, incident to the commercial demands put upon the human machine. It, too, must consent to be driven into a strange country, whose name is "civilization." In addition to the hours voluntarily spent within doors, there are hours when it is simply impossible for the civilized man to escape out-of-doors. Even when escape is possible, he must often be received into an atmosphere itself contaminated by factory fumes which corrode stone walls and play double havoc, therefore, with the silken texture of his mucous linings. Even where factories are drastically regulated or quite banished, his fellow men alone, with their mere exhalations and foot shufflings in crowded cities, serve to multiply the impurities of the air 1,500- to 15,000-fold. Most inexorable necessity of all, the greater part of a man's time must be spent in a sedentary posture, every minute of which adds to the partial defeat of every

bodily function. Lastly, there is the mending. For, where drugs must be applied, the same vicious wheel is set in motion which consumed the residuary endurance of the automobile; every cure removes a considerable obstruction, depositing an inconsiderable one in its place, like an eraser which obliterates a mark and leaves a smear.

Consider, now, the unity of the human body. No machine is for a moment comparable. For a faint idea of how one part affects another, read the Government's recent report on the "Conservation of National Vitality." On almost every page of that report we find such expressions as "predispose" and "cycle," employed to show how minor ailments — ailments which have not even the dignity of names — lead to diseases with names too long to be familiar, or so familiar as to be terrifying. It was once thought that polluted air did no damage but to the lungs; now, fresh air is prescribed for nervous prostration. It was once thought that sedentary life and round shoulders produced nothing but flabby muscles — surely not a great calamity to him who has no use for firm ones; now it is believed that this relaxation, especially of the abdominal muscles, leads to so-called portal-congestion, or blood-stagnation, and thus, eventually, to nervous prostration. The

effect of bad teeth was once thought to begin and end in the teeth; now it is observed that the teeth drop poisons into the well of the stomach, and even that their pampering with soft foods defeats the growth of the jaw, and through the jaw holds down the expansion of the skull, including the cranial cavity. Tonsillitis, too, is not supposed to end in itself. Beside spreading inflammation in its own neighbourhood, it may lead to inflammation of the joints; it may contribute to appendicitis, to peritonitis, and to valvular troubles of the heart. So intimate is the interlacing of any one part of the body with every other part, that not even scientific microscopes can follow it. For instance, it has been discovered that for every death from typhoid fever averted by removing one of its known causes (water pollution) two or three deaths from entirely different diseases, such as pneumonia, tuberculosis, bronchitis, and others, are simultaneously averted. This is a law that has been statistically discovered: *Physiologically, it is still a mystery to its discoverers.* In a word, there is perhaps no abuse, however light, which is necessarily confined, in its eventual effects, to a given kind of disease.

Having said all this, we are still far from expressing the unity of the body. A machine is a physical object. When it is at rest, it is at rest.

Life, on the other hand, is not an object at all — it is a process. When it is at rest, it is extinct. Its unity is less like the unity of a machine than like the flow of a river between its containing banks. The bodily organs that contribute and participate are entirely subordinate to the river. That river — the flaming river of life — is the blood; *and every disease, from the bite of a rattlesnake to melancholia, is a blood disease.* Blood is generated through the joint action of lungs and stomach. It receives, it transmutes, it distributes, and the tissues feed on the product. That is life. And when, through lungs, stomach, skin, or mucous lining, the blood receives the seed of death, it is very rarely as the concentrated violence of the reptile, but very often and very constantly as a softly filtered sediment, fine as the filings from gold dollars, drifting invisibly into the small crevices of life, until, in due time, life is irreparably choked.

But this brings us to the critical point in the argument. For, here, an objection will always be interposed by the ingenious man who is unwilling to yield. He has senses, and his senses fail to warn him of these stealthy encroachments. "If an automobile were sentient," says he, "would it not wince at every undue jolt; and, at every

additional jolt, wince harder? And if given control of its own actions (like me) would it not soon learn to avoid what hurts it? That which does not hurt, surely demands but little attention. What if these things *are* cumulative? All one needs is a little common sense. Now, I watch myself very closely, and I find that this thing does me no harm. I'd better avoid it in the evening, perhaps; but I am convinced that in the morning it is entirely unobjectionable — *in my case*, you understand."

Now, to those who *do* understand, few things are more amusing than these solemn protestations of discrimination, based on immediate sensations. A little observation of other people ought to convince anybody that the immediate sensations of Nature do not keep pace with the stealthy encroachments of disease. *Nature's warnings are always directed against immediate consequences. Immediate consequences are light — why should not the warnings be light?* If implicitly obeyed from the very start, light warnings would be enough. Nature does not always think it worth while to foretell rheumatism with her worst twinges until a short time before the calamity; and then the victim finds himself like a man who, having fallen asleep on a railroad track, suddenly awakes, bound to the rail and

simultaneously aware of the roar of an approaching express train which he can now in no wise escape, struggle as he may.

The most astonishing fact in pathology is this perennial astonishment of the sick. Consider the evolution of a case of any of the major alimentary diseases. An approved method of starting such a disease is by simple overeating. We may very well suppose that you begin your cycle in a boarding school, say at the age of fourteen. The first transgression deposits in the virgin reservoir of your total well-being a single film of damage. That film is literally negligible. But other films follow; and after a while, the cumulative effect is no longer negligible. After a while you call in a doctor. "This began yesterday, doctor." Yesterday! The mental reservation of that humorous man, couched in a serious phrase, however, is: "Thou fool!" For he knows that your trouble began long ago, when even he, with his pound of cure, could not have detected its microscopic genesis. However, he applies the remedy — an expedient so gratifying in its immediate results that, half consciously, you take a vow to repeat the indulgence at discreet intervals, since cure is always at hand. But, in fact, not even now are you *cured*. Only a part of the evil is undone. The doctor has been cast-

ing away your films of ill — *all but one*. He has truncated the heap; but still lying at the bottom of it is that residuary one, never to be torn out, awaiting its chance for further mischief. And at the next repetition of your fatuous cycle, a second residuary evil joins the first; — and now two are permanent where formerly there was but one.

Meanwhile, there arise two complications — voluntary methods by which you drug the sentinel and thus lengthen the period between sin and warning. In the first place, you make the astonishing discovery that a cigar, which some misguided expert had declared to be injurious, is so far from being injurious as to be a positive aid to digestion. Without it, does not your gorge leave you in discomfort? Quelling that discomfort by the narcotic power of tobacco — or its power to stimulate gastric juice, no matter which — you persuade yourself, like the ostrich with buried head, that there is no longer any vulture banqueting on your vitals.

In the second place, you discover a cure for fatigue. You come home from your orgy of overwork, fatigue warning you to bed. But you are resolved to enjoy your evening chat; and, to that end, you enliven yourself with strong coffee. Then, turning upon frustrated nature, you declare: “No,

little mother! You see you were wrong — I was not tired — only in need of my accustomed draught.” Could that outraged lady retort, her words would be something like these: “Son, you have indeed torn down my flag of warning; but you have not retarded the enemy’s approach. The weariness is smothered, but the losses which sleep alone could have repaired, still remain; they shall remain always; it is too late to repair them now; for now you could not sleep if you would.” But, alas! Nature stood mute. Her holy but brief vocabulary was exhausted with the original warning — her vocabulary, *but not her punishments.*

In twenty years of such cycles as these, or if you please, forty years, or even more, you wake up some morning with such an accumulation of residuary evils become permanent that you are henceforth devoted to a chronic disease. At this, you are surprised. Your last attack is more severe than any other had been, and less amenable to drugs — a clear breach of contract.

If, then, for small indulgences it is no defence to say that they are small, since, accumulated, their effects may become large; and also no defence to say that their accumulation is unknown to you, since, though unknown, it may still be in full operation, perhaps the reader may now be moved

to ask: "How about *me*? Even *I* am not innocent of such indulgences as you seem to be aiming at. Would not your logic seem to justify the inference that even *my* chances of maintaining good health are very small indeed?"

It gives me pain to admit it; in a world so pleasant to look upon and so well stocked with brave and smiling faces, it seems a little far-fetched. Nevertheless, the reader's deduction is perfectly inevitable. Nor is it based wholly on the theoretical considerations just presented. Were it based on these alone, I should hesitate to commit myself. But sometimes theory is outstripped by statistics. It was thus that men discovered the connection already noted between typhoid germs and diseases other than typhoid. And in like manner has the reader's horoscope, toward which theory was already tending, been pronounced in advance by statistics. Let us try the question out, like an insurance company, by the law of chances. In the recent government report, to which reference has just been made, it was shown that, in any miscellaneous hundred of those dying in this country on a given day, only two die of old age. To be sure, out of the same group of one hundred, there are about seven who die by accident or violence; but had these seven escaped their violent

ends, there is no reason to suppose that the proportion of old age among them would be larger than that prevailing among the rest of the population. Therefore, by the application of a little mathematics, it may be shown that, were accidents and violence entirely eliminated from human experience, still, of any miscellaneous hundred persons born, less than three have the prospect of old age. That is, of one hundred born, more than ninety-seven either have at birth no *capacity* for old age, or, having that capacity, they will be depleted of it as they proceed upon the journey of life. This does not amount to the declaration that the reader's chances are ninety-seven per cent. vitiated. Some of the menace in these figures he has escaped by belonging to a select class of society — a class not sunk in poverty and ignorance, and, therefore, not subject to those filthier ailments which go with that condition. But after every allowance has been made, it is still difficult to scrape together for him as many as one chance in five of *permanent* health. In other words, of any group of five people who sit reading these words, four are quietly marching to deaths which are to be more or less painful and more or less premature; and this, with no decided outward badge to distinguish them from the exceptional one.

Four chances to one of eventual disease does not, of course, mean four chances to one of inflammatory rheumatism or insanity. What it does mean is four chances to one of that genus, "misery," of which rheumatism and insanity are among the more venomous species. There are species less painful which may fall to your lot; but, since the same generic course of conduct leads indifferently to all, why risk any? Why walk into a chamber which must contain at least a hag, and which no insurance company can insure you will not contain a devil-fish as well?

This is the logic of figures. But even the logic of figures is not immune from short-sighted objections. It will often be inferred that, because an intolerable condition has been allowed to go so long undiscovered, there must be something wrong with the discovery, now that it is made. It is true, perhaps, that this critical finding never uncovered itself to your observation. A government commissioner had to piece it together by careful inference. But did you suspect the political corruption that lurks in so many sunny corners of the world, before the exceptional observers had hunted it out? Did you suspect the financial corruption which was brought to light still later, by the exhausting labours of investigat-

ing committees? The lurking quality of disease is not more mysterious than other mysteries; and, like others, it will yield to explanation if once we address ourselves to the task.

Perhaps we may best do this by trying to visualize the entire progress of life as I think we may fairly deduce it from the government report. In the first stages of its goodly avenue there strolls a gay young chorus, exuberant with health. About the point where these begin to have offspring for whose welfare they become solicitous, they lose the brooding attention of their own parents. Therefore, they begin to take up into themselves those voluntary seeds of death from which their parents had hitherto defended them, and which they now forbid to their own children. Simultaneously, they plunge into conditions of bread-winning which contribute so many additional causes of disease. On the second stage, therefore, the dust is trampled by that narcotized horde which would never think of leaping or skipping or giving off any other manifestations of the electricity of real health, but which, from oblivion or habit, has learned to mistake its dull neutrality of condition for a condition of health, and to call it by that name. These are the hugest and most insolent company on the road. In the third stage, burdens begin to be carried — not

conspicuously, on the shoulders, but concealed within the body — nameless predisposing disorders; functional impairments of heart, stomach, liver, or kidneys; other little ailments — dyspepsia, insomnia, nervousness, sick-headache, tonsillitis, catarrh, grip, colds, lumbago, obesity, decayed teeth, baldness, deafness, and just “troubles.” On the fourth and last stage are the crippled survivors who are sometimes sorry they survived, with all that catalogue of Nature’s more severe revenges. The really old are here purposely disregarded — they are so few. Like William Gladstone, they passed the critical transition from the first to the second stage of life without embracing that multitude of “negligible transgressions” which there solicited them; or, at least, embracing only a minority of these. Here, then, is the complete progression of life in four parts: (1) health; (2) quasi-health; (3) nameless disorders; (4) calamities.

Do you begin to perceive, here, the solution which we set out to find; how it happens that you may look carefully about you and still not realize the universality of disease? Though life is a long, narrow road, well filled with passengers, yet those that pass a given corner at a given moment, especially in the later stages where the ranks are decidedly thinned out, can hardly con-

stitute an imposing array, taken alone. Even were the traffic evenly distributed, and one hundred per cent. of it destined to reach the last milestone, those reaching it at any given moment would attract little attention, because they would still constitute but a small percentage of all mankind. In the United States, four thousand die every day; but compared with the 85,000,000 always remaining alive, what are 4,000? Should the 4,000 write one common will, and should that will consist of a warning to the armies following on their heels, and should the 4,000 recite that will aloud in one concerted shout at the hour of midnight, still the rest of us — even were we disposed to attend to a testament so fruitless as to bequeath nothing but good advice — the rest of us could drown out their feeble voices by the mere continuance of our steady breathing. But, the fact is, they do not shout. It is not alone because they are few and feeble that we give them scant attention. They do not *want* attention. We have called it a world of smiling faces. Why not? That *we* should smile is not surprising. It remains only to account for the continued smiling of our predecessors. Very well, then. The most pitiful sufferers among them have moments of ease; and *then* they smile because they are grateful. When they cannot smile

. . .

because they are grateful, often they will still make out to smile because they are brave, or, perhaps, because they are merely proud; each knowing that his own smile is a masque to deceive his neighbour, but accepting his neighbour's reciprocal dissimulation in good faith. Each man imagines his own case to be exceptional. • When a man can no longer smile, at least he will usually have the good grace to go into retirement. Should it so fall out that he come to *die* without a smile, all who loved him will conspire to prevent the world from guessing the humiliating truth. And after he is dead he cannot deceive us.

There are points in which this figure of speech might be called unfair. For instance, all of the four conditions represented — the well, the neutral,* the tainted, the crippled — may be found at *one* stage of the journey. The warning is not always twenty miles to the fore. Sometimes a fellow passenger has run through the whole gamut of conditions, reached the acute stage, and died before the age of thirty. Sometimes a fellow passenger at thirty, never having reached the acute stage at all, just drops by the wayside, overburdened by the predisposing ills. And, indeed, not only are all four conditions found in one stage, but all stages are found in one *place*.

The journey of life may be taken without even going over the door-sill; and the warning sometimes glares at a young man across the breakfast table. However, neither of these modifications affects the general truth: that those who should furnish a warning are in the minority — are dispersed thinly over the ground — are feeble — are voluntarily or otherwise withdrawn from conspicuous view — are reticent — each under the impression that his own case is unique — each convinced that there is nothing in his past life to explain his present estate.

It must be evident, at last, that while the world slept, tremendous forces have been working for degeneration. Contrary forces are also at work; and to which of these belongs the present advantage there is not yet light enough to determine. But at all events, the case is not concluded in favour of the optimists. The average duration of life, even in the United States, is only forty-five years. True, the optimists allude with pride to the constantly lowering death-rates; but this phenomenon may be accounted for, partly, by the brief and often rather cruel protraction of useless lives; and, partly, by improvements in sanitation such that a less vital people might very well be expected to survive, under these external

fences, longer than a more vital people would survive under the external visitations of pestilence. The pessimists, on the other hand, claim — though perhaps they cannot prove — a reduction in the proportion of centenarians. At all events, on page 26 of the government report, it appears that while general mortality has been decreasing, mortality in the latter half of life has been increasing. That insanity is growing faster than population is also a conclusion for which another official document (issued in 1906) openly argues. The report on a recent investigation conducted at the recruiting office of the English Army, though suspected of whitewashing, is still considered sufficiently alarming. Nor have the pessimists quite been silenced with laughing at the words of Sir John Ardagh, uttered at the Hague Conference of 1899, where he was pleading for the retention of the dum-dum bullet in warfare with savages. For, said he (the sensitive man), though the ordinary bullet is enough to despatch a civilized soldier, it has so little effect on the savage warrior that the latter often has time, after he is shot, to come to the apple and deal a fatal blow before he expires. For the mothers of the land — more essential than its soldiers — it is impossible to believe that our race has always been so suckled on human milk as it is now.

But whatever be the true solution of this vexed question, it is clear to the most casual observer that, if man is not degenerating, he must have been degenerate from the beginning. Cross on the crowded ferry and observe the dull neutrality of health — the mingling of the second and third stages of the journey. There you may see the ubiquitous outcroppings of what is gnawing within: teeth decayed, though glossed with fillings; eyes darkly pocketed beneath, and their lids often quivering; skin bleached; brows nervously contracted; features out of line; not one man in a thousand compelling the eye of an artist to revisit his figure and his features. This, if you stop to think upon it, is really a little startling; for the human anatomy has been the chief inspiration of works of art; and *in other departments of art* we usually prefer the inspiration to the copy. Yet induce the first forty men of forty years whom you meet, to present themselves all at one time on the floor of a gymnasium, and to strip off their clothes. Can you think with equanimity of placing your hand in contact with one of those bulging, debilitated bodies? Now, a horse — a merely average horse — is a feast for the eyes; and to touch his coat, not only with your hand, but even with your cheek, would afford distinct pleasure. Such is the perverted discrepancy be-

tween a drudge animal and the alleged image of God.

Call this degeneration or not, it is a state of things which may be abolished. Whether we are made literally in the image of God, I do not know; but I know that we may interrupt our present reversion to the image of our literal ancestor. For it is from a divine attribute in mankind that both movements spring — earthward as well as heavenward. That attribute is PLASTICITY. It is the plasticity of the human body which has enabled us in a measure to resist the forces of degeneration; to accommodate ourselves in a measure to the evils we have ourselves invited. Here is the seed of unlimited hope. Pessimist as to conditions, I profess myself optimist as to the possibilities; and both sentiments find their root in the same attribute. No man can be less than optimist who, turning his back on the hospital — that crowning vanity of our age — visits the Vatican instead. There may he see the marble inheritance of Hellas. An immediate sense of fellowship convinces him that it is an inheritance which belongs to *him*. Confirmation of this conviction he may find, if he search diligently enough, in the flesh and blood of a few athletes now living. From head to foot the skin of Eugene

Sandow, for instance, is of the texture of silk and wears the perpetual effulgence of a rose. Like Michelangelo's Adam, and like the sound of a Beethoven symphony, his beauty has caused the throat of many a spectator to catch with emotion; for, indeed, the man is both a painting and a burst of living music.

For the present race of men this will seem like a high goal — living music; and were the way up to it as complex as the way down from it, we might well grow reckless from despair. But if there are a hundred and one kinds of disease, there is but one kind of health. Tolstoi begins his "Anna Karénina" with these words: "All happy families resemble one another — every unhappy family is unhappy after its own fashion." And we ought to remember that the Greeks, with never a laboratory, managed to be the most hygienic people the world has yet produced.

What, then, is the simple expedient that remains for us? The first part of this argument — which might be called the story of plasticity abused — has been devoted to the cumulative effects of small obliquities. That these are wholly accountable for the worst and the most characteristic of our ills, was more or less arbitrarily assumed. The *proof* of the assumption, however, has been reserved for this, the second part

of the argument — which is to be the story of plasticity turned to account. Because, when the proof is complete as to causes of ill, it will also be complete as to means of escape. All causes may easily be reduced to a few general classes. Exclude from consideration those general classes which can have no application to the reader, and shall we not arrive at that general class which does have application? The miracle of cure may then be wrought by the simple expedient of showing our backs to this class. The classes, then, are four in number: (1) pestilential (from which nearly all Americans are now exempt); (2) epidemic (from which the reader, at least, is essentially exempt); (3) vicious (to which the reader will hardly confess an addiction); (4) so-called ‘negligible transgressions.’ This last, then, is the class which must be held accountable for the reader’s four chances of misery to one chance of health; and (corollary) its abandonment is what is needful for his redemption. *Quod Erat Demonstrandum!*

I am aware that the list on which this demonstration is founded is not positively exhaustive. It leaves out of account unknown causes, and causes which, though known, are so woven about us by society as to be unavoidable. As to the unknown causes — the cause of cancer, for in-

stance — I find it impossible to entertain any fear, provided our simple expedient of abjuration be honestly followed. *The unknown causes are all lurking among the known causes.* All are one tribe. For if the prevention of typhoid fever will prevent three or four other diseases in a manner not yet solved, so the avoidance of all known causes will, through the mysterious unity of the body, suffice to prevent, in some large measure — no man can say how large — all diseases whatever. As for those causes with which society may still compel us to put up, I am not so peevish as to refuse partial emancipation because I cannot have it all. I will do what lies open to me, because, under the whole expanse of heaven, nothing else *does* lie open to me!

But, in this second and optimistic phase of the argument, as well as in the first, we are not left to depend upon theory alone. Of apparently miraculous cures, there are abundant recorded instances; and every instance is an illustration of just this plastic principle — the cumulative effects of little reforms daily persisted in. Have we not the example of a Harvard student, a generation ago, who, in order to wipe out an affront put upon him in his freshman year as the smallest man of his class, made himself, by senior year, the

strongest man of his university, and, eventually, the strongest man of his day? Is there not living in our own day a young physician, once given over to die of tuberculosis, who now, whenever the notion strikes him, jumps into the open and runs twenty-five miles without pausing for breath? With such instances as these we could fill a volume of "Who's Who."

To the man of neutral condition whom I am addressing, however, such instances may seem fantastic. "These are instances of muscle," he says. "Has not your philosophy of 'little reforms persisted in,' some less startling examples to offer in the field of mere unassuming health?"

Yes, in the field of unassuming health, but not less startling. As long ago as the days of Columbus, the virtue of this philosophy of "little reforms" was put to the test in the field of unassuming health by that quaint character, Louis Cornaro. By an early career of dissipation this man had, before the age of forty, been brought so low that his friends despaired of his life. But he was a man, able to read his warning at the eleventh hour; and solemnly dedicating the remainder of his days — what little remainder he dared hope for — to consistent, devout, unswerving temperance — a temperance that included all things, but related especially to food — he not only recovered his

health, but went on to number his years to more than one hundred. He even found, in his age, more relish for life than in his youth; and, for the salvation of his fellowmen, he wrote several treatises upon himself, full of quaintness and vanity.

Mr. Horace Fletcher, in our own day, is another man who made a miracle of common sense. He was an athlete and an adventurer in his youth; at forty, a wealthy man of the world and a physical wreck — so much so that he could not walk briskly without gasping for breath. When, at the age of forty-four, this man was rejected for life-insurance, he, like Cornaro, took counsel with himself. The ingenious reasoning by which he determined to stake his chances thenceforward on the principle of improved mastication, need not, at this point, be set forth. Suffice it that, by dint of its application, he not only won his insurance, but not content with becoming a merely average risk, went on heaping up the measure of his vitality until, on the fiftieth anniversary of his birth, if you please, he was able to outride an experienced and youthful wheelman, covering on that day not the stipulated one hundred miles merely, but keeping right on until he had covered one hundred ninety. On the following day, before breakfast, in order to test the

supposedly exhausting effects of so stupendous an achievement, he rode fifty miles more! Eight years later, on the "ergometer" in the Yale gymnasium (an endurance machine, designed to test a single muscle), he broke the record which had been established upon that machine by the youth of the university. Nor was his superiority measured by ten per cent. merely, but by one hundred per cent.! In the scene of this second achievement there were dramatic possibilities: in a little chamber of the gymnasium, the gray-headed man of fifty-eight, seated and quietly pumping at the weights; the cautious director repeatedly warning him against allowing his pride to carry him too near the mark that had been set by younger competitors, but at last, as that mark drew steadily near, rushing out into the corridors and haling in the callow spectators to see the mark actually reached; and the spectators, once in, remaining rooted in wonderment to see the mark reached a second time. Whereupon the old man, though still far from exhausted, saw fit to stop.

The nearer we come to ourselves, the more startling has always been and always will be the evidence of the opportunities we have missed at our very doors. Cornaro and Fletcher did something more than overcome pathological handi-

caps. The level to which they eventually rose was higher than that from which they had originally declined. And a recent scientific investigator, having profited by their example, conceived, with infallible logic, that the level from which men do habitually decline — the average which we call normality — is not normal at all, but might be set much higher than it is, if men would but apply, in advance, the same principles which, applied afterward, overcome pathological handicaps. This man, being a mathematical idealist, set about the demonstration of his theory in such exact wise as would leave no escape from his conclusions on the ground of prejudice. He determined, as is always the part of wisdom, to back up theory with statistics. And he created his own statistics through experiment. Selecting nine so-called healthy students — but not athletes — out of Yale University, he first kept them for a time under their usual régime and measured their endurance, taking every precaution against possible *underestimate*. He then, for five months, gave them the benefits of Mr. Fletcher's practice, and at the end of that period again measured their endurance, this time taking every precaution against possible *overestimate*. Besides the precautions against underestimate at the beginning and against overestimate at the end, an

additional precaution was taken all through the experiment: the men were instructed not to alter their habits in any other respect than just that of mastication — not to exercise more — not to smoke less. Under this régime eight of the nine men made progress in endurance. And what was the measure of their progress? More than ninety per cent.! Some of the men even gained more than one hundred; ninety was below the average, after the investigator had rejected the benefit of every doubt. As for the ninth man, who did not gain, he made the exception that proved the rule; for he was the only member of the group that had conspicuously shirked the rules of the experiment!

, Now note some peculiar features in this series of apparent miracles:

First, they were all wrought by a single “little reform.”

Second, the earlier in life the ounces of cumulative prevention were thrown in, the less conspicuous to the outward senses, but not the less extensive in fact, were the pounds of advantage accumulated: Mr. Fletcher had no difficulty in realizing his salvation; but it took measurement and record to prove to the eight young men how enormously they had benefited.

Third, the advantage reaped was not strength,

but endurance — the less picturesque but the more useful quality.

Endurance is a thing which may be capitalized. It represents a gain in longevity. It represents a gain in current capacity. It is a pledge of freedom from future disease. It really consists in a disinfected body. It involves, above all, a gain in efficiency; that is, it enlarges the period, both in the day and in the life, for which the body and the mind will respond cheerfully to the exactions of the will. Suppose, to be conservative, that by this "little reform" you may gain fifty per cent. in endurance; that is, in the capacity to withstand fatigue. Suppose, also, to be conservative, that this gain of fifty per cent. in endurance implies a gain of ten per cent. in current efficiency; that is, in output of effort per day. Consider what that ten per cent. is worth. To one man it may mean pure gain for purposes of further income, or, if he is an altruist, for purposes of expenditure on behalf of others. To another man, it may represent just that margin of reserve power which he has always wanted for a buffer between chronic fatigue and cheerfulness.

Whatever promotes health tends toward reserve power; and reserve power tends toward everything that makes life worth while — everything that either constitutes life or adorns it.

II

HAPPINESS

OF THE rewards of a disinfected body, perhaps those already mentioned — the avoidance of pain and the increase of commercial efficiency — are as much as can be forced upon the attention of the average man. Outside of comfort and cash, his ambitions are few. In literature, for instance, he is still content with what exaggerates his own weakness and tends to the amiably grotesque. Samantha, David Harum, Uncle Remus — these, in his secret estimation, are far superior to the upright, gladiatorial Homer. “How homely their virtues!” he says, “their faults how human!” But there are those whose ideal of the “human” does not spring from its defects; and to them the loss of beauty is as bitter a spectacle as the loss of money. I have the testimony of a gentleman who, on approaching middle life, revisited a community in which he had lived as a boy. In that earlier period, when life was as romantic as the first sunrise to an eye unfatigued, beauty appeared common. That an

interval of thirty years should have worked changes was inevitable, and the mind of the traveller was prereconciled to all which he thought could fairly be called inevitable. But that the middle-aged representatives of the brave and gay young people whom he had known thirty years before, should, hardly in a single instance, retain a trace of commanding charm, seemed to him like a wanton visitation from a cruel God. A new generation stood beside the older one, looking as the older one had looked thirty years before. In the new generation vigour and bloom were at the crest, just balanced for their sure descent into the slough of middle life, where their parents were grovelling before them. And it was with a new pang of realization that the traveller, like the founder of a dismal insurance company, was thus able to anticipate some of those events yet held in leash by the Creator; to see yesterday and to-day side by side; to see the youth and the middle age of almost the same individual at the same instant; the noble and pure skin beside the skin upon which the coöperative, cumulative mud of a muddy stomach and muddy lungs had outcropped. People of middle-life whom he had never before seen, stood beside his old friends, equally devoid of beauty. Children of these stood beside the children of those, equally candidates for its loss.

And this community was typical of the world. Moreover, the elder were the dominant members of it, taking themselves for granted, taken for granted by their offspring, and hence precluding the suspicion that anything was wrong with the world or might be changed in the interest of generations to come.

The average man, however, is at least no candidate for pain. Vice he has long been wise enough to detest; negligible transgressions he will also abandon when his logical imagination is once aroused; and sticklers for beauty may console themselves with reflecting that what will avert pain at sixty will go far toward saving beauty, and the scruple for beauty, at forty.

But it will do more than this. When we were engaged in estimating health in its merely utilitarian aspect, we appealed to the fiscal instinct of the philanthropist as well as of the average man; offering the former, as his share of the fiscal consideration, a margin of reserve power to be capitalized for the benefit of others. But there are higher grounds than the fiscal, which the philanthropist, at least, will not be above acknowledging. For instance, the greatest boon in the gift of philanthropy is comfort. And to whom do we go when we want comfort but to him who is stronger than ourselves? What we then crave

is not the support of a comrade straining every nerve to conceal from us his own exhaustion, but rather the consciousness of stores of unexpended energy and kindness on which we may pillow our own distress. It is Maeterlinck that compares a wise mother with a wise light-keeper — not consuming all the oil in one prodigal sacrifice to give *heat* to the chilly mariners, but husbanding the same to cast a beautiful *light* upon their difficult voyage.

Besides beauty and happiness, there is virtue to be considered.

- Virtue is to make the most of conditions. I protest that this is a sound definition of virtue. But what is not usually recognized is, that more can be made of a condition of health than of a condition of sickness. The common notion of virtue does not contemplate making the most of *all* conditions, but only of a limited class of conditions; namely, of those which are adverse. It is the old story of the man who put sand on his axles, that his horse might pull the harder and so accomplish the more. Adversity makes character, we tell ourselves; and the object of character is to resist adversity. Is there anything beyond this tread-mill? If so, it must be to give happiness to others — that is, to deprive others of that very adversity which we profess to worship as the mother of our own excellence.

All these considerations, then, — commercial, æsthetic, and ethical — alike concur in damning disease.

Where, then, does disease stand in the scheme of Nature? No one denies that the causes of it have always been in the world. Hostility environs us; it environs all creatures. But the presumption is that Nature once armed us against it not less effectually than it still arms other creatures, and that we have inadvertently succeeded in disarming ourselves while other creatures are continuing comparatively immune. To show the manner in which our disarming appears to have been accomplished, we must first devise a rough sort of concept of Man and of Nature. Of course, in the larger analysis, man is a part of Nature. But there is a sense, and a clear one, in which man and Nature may be regarded as separate agencies, working sometimes even at cross-purposes. By "man," in this narrower sense, is meant the distinguishing feature of man — his intellectual part — that in him which thinks — is discontented — devises a change. By "Nature," in the narrower sense, is meant that Power, in man and out of him, which first arranged his adjustment with environment, automatically, or instinctively, without any reasoned move on man's part.

Now, the original misunderstanding between man and Nature began in this wise. Nature, herself, was guilty of an imperfect adjustment; and man set himself to correct it. In all Nature's handiwork there is some initial maladjustment; otherwise there would be no evolution. That is why some species perish altogether, and others, to survive, undergo change. That, too, is why man has builded himself defensive institutions, many of which are, or have come to be, indispensable. But in man's method of evolution, we must pause to take note that there is something unique growing out of his unique endowment as the only intellectual species. Other organisms change internally, slowly, and unawares. Man cannot wait for internal changes which must needs be slow; so, with deliberate audacity, he changes his environment instead. This is well enough, as far as it goes; but just here enters the serpent. For while, by his tinkering at environment, man has found heart's content in some directions, yet, in other directions, he has been every day taken aback by unexpected and untoward by-products. Tuberculosis, for instance, is the by-product of houses — those ingenious defences against the rigours of the colder climate whose blessings he was determined to sample. He secured his obvious shelter against the obvious

cold blast, but, in the same operation, shut out invisible allies and shut in invisible foes. Nor is this the explanation of tuberculosis alone. If tuberculosis is due to houses, colds are in part due to clothing; nervous prostration is in part due to chairs; eye-strain is almost wholly due to books; while our very boards of health are a continuing monument to the bad by-products of civilization's most rudimentary device — congregation.

To the war upon disease there is one objection which has been reserved for this point in our discussion. It seems to be an attempt to use against the hygienic programme the very concepts which we have just been using in its favour; namely, the concepts of Evolution. The notion is that hygiene is a kind of disloyalty to Evolution; a conspiracy of weaklings to weaken the human stock by saving the unfit, instead of allowing elimination, the characteristic agent of Evolution, to do away with them, and thus to strengthen the stock. This argument has at least the merit of employing scientific terms; but it leaves an important scientific factor entirely out of the account. It leaves out of account the extra demands put upon Evolution by those inventions of man — houses, etc. — whose relation to disease has just been pointed out. It assumes that changes in physiologic structure can keep pace with the changes

recorded in the Patent Office. But we have it from Professor Shaler that Evolution can do little more for man than it has already done. Racial plasticity, except toward the glorifying of the existing type, is already at an end. Such a pace as that set by the Patent Office, therefore, we can never succeed in keeping. Our failure to do so hitherto is sufficiently demonstrated. Indeed, if we ask the opponents of hygiene why they themselves do not continue to close their windows, now that science has shown the efficacy of that expedient for eliminating members of the race, they seem a bit confused. They might further be invited to prove their vaunted solicitude for the toughness of the human stock by organizing a poison-drinking brigade; for certainly the survivors of such an enterprise could not fail of a certain fitness — a fitness for poison.

But suppose we yield to the expostulations of those that deplore hygiene. Suppose we go on increasing the obstacles to health and allow only those to survive that prove too tough to perish. The question still remains, in what *condition* will they survive? Mere survival, and nothing more, will never content mankind. What man cares for is not to survive merely, but to flourish. And there is evidence that flourish he never will under aggravated adversities. First, consider an argu-

not from analogy. For illustration, let us take another organism — the fir tree. Climb a mountain (I borrow the suggestion from the Government report) and observe these trees as they ascend. As the timber-line is approached, we shall begin to find the very sort of trees that has managed to survive under hard conditions: trees that have withstood the hurricane and the stingy — the hurricane by crouching, and the stingy by keeping undersized. Tough they doubtless are, but also stunted, crooked, bleached, and grey. No. If you would have trees that flourish, you must go down again into the valley. The ones which you find there were perhaps never selected for a stingy soil; but, ever since mankind has known them, they have never failed to inspire confidence in shippers; and if you drag them to the city and set them up for the timbers of a cathedral, they will not prove faithless to your trust. They will give generously of their strength, because they have generously received. Now return to the human species. Go with me into a certain strait and I will show you the analogy toward which I have been manoeuvring. Here are two ladies who hate fresh air — they even fear it. Nor do they die of tuberculosis. Their tough little lungs harbour no bacilli. They are fit for just such a stingy atmosphere as they have

chosen for themselves. But for all their toughness of lung, I do not envy their lot. Their little persons are anæmic, four feet high, a span wide, and with voices scarce audible across the room. Subjected to such conditions as theirs, the red man of the forest would die in a month. Yet it is he who may be said to flourish, while the little old ladies merely survive. Perhaps you cavil at an Indian? Then I can furnish the authentic case of a civilized man. By trying to live like a little old lady, or a banker, he came to death's door; but having learned, barely in time, to turn to the Indian for his model, he may now be said not only to survive, but to flourish. The muscles of an Indian, of course, he can never show; but whereas for three years he could not work at all, now he works every day like a Titan; literally one of the noblest timbers in the commonwealth's cathedral of workers; giving generously because he has generously received — or rather, giving generously because he has generously secured for himself what society, well-nigh dominated by bankers and little old women, would have withheld from him altogether. And what he is chiefly working for, is to bestow on others the boon which he was so near missing for himself.

It is true that our efforts to restore the balance have sometimes gone too far, and have thrown it

the other way. Eleemosynary institutions have been rescuing many lives unfit to survive even in a valley. But this work is not a work of hygiene at all; it is a work of therapeutics. The unfortunates thus saved are already in a pathological condition when born. Of these it is, no doubt, righteous to say that their survival is to be deplored. But if they ought not to survive, the proper time to eliminate them is before they are born. To follow the example of Sparta and expose them to the wolves, we have not the heart. The only humane remedy is prevention; and prevention is the essential tenet of the hygienic creed. Thus, the very force which is criticized for impairing the stock by making life agreeable for those that are alive, is the one force which may be trusted to improve the stock by sparing the unfit the miseries of being alive at all. The method of this merciful prevention — the prevention of life itself for congenital unfortunates — we shall point out specifically in another place.

Meanwhile, what we are proposing to do is to take down the bars of civilization wherever they shut out friendly forces, and to keep them up wherever they shut out hostile ones. We cannot even be content with restoring the balance. A mere so-called "return to Nature" — that is, to a primitive adjustment with environment — will not

be enough. The primitive man we shall excel as presumably the Greeks excelled him.

For why should our faith in Nature, with her automatic adjustment, be greater than our faith in man, with his reasoned adjustment? Both faiths are unbounded. Man has never yet failed of an object toward which he has deliberately set his face. The reason he has hitherto failed of health is that, hitherto — except the Greeks — he has never deliberately set his face toward health. Recently he has learned how to feed calves so as to preserve their teeth, for this was a procedure that had a commercial value, and toward commercial values his face has been chronically set since time immemorial. It has only just occurred to him, however, that the same principles of mastication could be made to redeem the teeth, the jaw, the skull, and thereby the brains, of his own offspring. This deduction did not occur to him earlier, because sickness among his own kind he had always taken for granted. It is only to one thing at a time that man turns his transfiguring proclivities; and it is his foible to assume that whatever he happens for the moment to be leaving stationary, owes its stationary condition to some ultimate decree of Nature which he could never budge, tried he ever so hard. What is asked of him now is simply that he apply

o himself the same principles which have given him success in all his other enterprises; namely, that he join forces with Nature; that he first study her demands, and then, by obeying her, conquer her — bend her to his own service. It is thus that he made dynamos. It is thus that he shall make health.

“It is within the power of man,” said Pasteur, “to rid himself of all parasitic diseases.” And his successor, Metchnikoff, has called himself “an optimist on scientific grounds.”

And these same considerations I venture to apply to the subject of happiness. Just as disease has long been deemed inevitable, so unhappiness has long been regarded as a kind of virtue. Indeed, concerning happiness there has grown up a kind of a philosophy of sour grapes. The tedious dictum has gone abroad that to seek happiness is the surest way to lose it. But, really, this is a rash assertion. I do not deny that one element in happiness, even if it sound paradoxical, is to be able to do gracefully without it when you must. But outside of a few ancients and orientals, the outright search for happiness has never yet been systematically undertaken. Man has never yet deliberately turned his invincible faculties in *that* direction. It is only the sporadic outbreaks of

the appetite for happiness, after unnatural repression — the destructive violence of a harmless river unwisely dammed up — which have hitherto been recognized as the seeking of happiness, and therefore condemned.

Now the love of pleasure is, in at least some cases, a saving provision of Nature. In the beginning, it saved us from poisons; and even now it sometimes makes a break in the right direction. The wisest policy were neither to condemn it nor to ignore it, but to turn it to account. For at any rate, we can no more quell it than we can suspend gravitation. Every breath we draw is a blind effort for it. And the ethical teacher who denounces such efforts is himself making them with every syllable of his denunciation. Every time he pays a car fare, every time he puts on his overcoat, every time he opens a door, every time he signs a contract, every time he sends for a doctor, he is labouring deviously, a step at a time, toward an eventual product — some little cross-section of happiness, or at least some little mitigation of unhappiness, either for himself or for another.

But the bad economy of conducting our search, thus blindly instead of open-eyed, is made patent by the fact that the product is out of all proportion to the elaborate modern machinery from

which it issues. One is reminded of that rueful adventure of Alice in the Looking-Glass.

“‘Well, in *our* country,’ said Alice, still panting a little, ‘you’d generally get to somewhere else — if you ran very fast for a long time, as we’ve been doing.’

“‘A slow sort of country!’ said the queen. ‘Now, here, you see, it takes all the running you can do, to keep in the same place.’”

So, with us. Outside the fine arts, all the activities of life may be divided into two parts: commerce and philanthropy, the twin, supplementary engines of the factory of life. But in watching and guiding the operations of these complex contrivances, we have forgotten the product for whose sake they were installed. When we rediscover the object and set our invincible faculties in *that* direction shall we not win toward the goal?

PART TWO
THE INDIVIDUAL AND HIS HEALTH

III

MENTAL OBSTACLES

GEESE AND GANDERS. HYPOCHONDRIACS AND CAVALIERS.
CANNON BALLS AND BALLOONS.

LITTLE reforms" are not necessarily difficult; and such difficulties as they present are apt to be in proportion to the reluctance or misapprehension with which we approach them. That hitherto we have approached them — or rather that they have approached us — with some flaw in our mental attitude, is a matter of history. There are several unique bugaboos, one or another of which is likely to confront us at every turn. These have a way of rising in one's mind more or less unconsciously. It is well, therefore, that we pause long enough to single them out and brand them for recognition, lest they frustrate us hereafter.

First, then, there is the chronic reluctance to disturb mere habit; this being shaken, rises the very real difficulty (because of misguided previous education) of distinguishing reforms from fads; this being cured, appears the familiar belief that

to think about one's health is the surest way of losing it after all, through valetudinarianism or hypochondria; this being disproved, stands the last guard of inertia: that to be conscientious about health is to become a slave of rules, even if not an hypochondriac.

All of these, a little second thought, I believe, will suffice to dispel.

A

As a nation committed to the habit of business-economy, we simply cannot afford to keep up the old vice of allowing practice to lag so many generations behind theory. By the expenditure, in each case, of a single pound of energy per day, more men might have been saved than have been slain in all the wars of history — a foot-pound of energy, in the raising of a window. This fact was long known to a few experts; but, to the rest of us, the house-habit seemed so much older and more authentic than Nature herself that when the experts offered their easy elixir, we could only hoot; the wise and benevolent could only stand biting their fingers while the foolish and ribald perished of the white plague. It is hardly ten years since the first American window was smashed, much to the dismay of the present writer

•

whose friend lay behind that window (or one like it) in a Saranac winter. One day we began smiling at this past infirmity of ours. Yet almost the day after, when propaganda against promiscuous spitting was broached, the very boards of health laughed it out of court. What can put an end to this chronic habit of being the first to laugh instead of the last — what but the adoption of something like the following three principles to guide our judgment?

I. There is no conclusive presumption that any particular custom is immune from partial or complete impeachment.

II. There is no presumption at all that a particular innovation is right.

III. There *is* a presumption — overwhelming if not conclusive — that some among the innovations bidding for acceptance will prove full of salvation.

B

“But how shall a person tell *which?*” says the level-headed man. “Take the matter of diet. From all points of the compass I am hailed by rival — I was going to say faddists, but let that pass — at all events, *rivals*, some of whom *must* be faddists. I am no specialist. How shall I choose?”

In the first place, it is a pity that laymen — yes, and doctors, too — have not had this truly difficult task simplified for them by some central authority, — an institute, say, which should do for hygiene much the same work that the French Institute does for letters: gather up the fruits of research which are being continually deposited by laboratories; filter, simplify, and reissue the same to a constituency of disseminative subscribers, including even grammar schools; and this with the precision and promptitude of a newspaper. The Smithsonian Institution, by the explicit terms of its foundation — “the increase and diffusion of knowledge” — might, with the utmost propriety, include such a function.

In the second place, it is a pity that, in the absence of such an institute, our own education is not adequate to one of its proposed functions — that of discriminating between cranks and prophets. Our education, as well as our bodies, seems to be sick. It may not be less “culture” that we need; but at least we need more science.

Meanwhile, as we wait for an institute and a reformed education, the case is not hopeless. We may, in a measure, reform our own education. Let us observe, for a moment, the fundamental method by which science would go about

the reduction of one of our difficulties, and see if our eyes are too weak to read a little by her light.

If A advises "do this," and B advises "do that," Science will begin by acknowledging that both may be right under different circumstances; that the solution of the apparent conflict may consist in an underlying law as simple as "do this" and "do that," yet identical with neither. Imagine a savage fully conversant with the constitution of matter, but still phrasing his law of gravitation thus: "Objects fall." Confront him with a rising balloon, and he will conclude at once that there is no such matter as a law of gravitation, after all. He will not wait to hear your explanation: that all particles in the universe attract each other in a certain ratio, and hence, matter being what it is, lead *must* fall and balloons *must* rise, both in obedience to one law. Even so does the average man declare: "I will not listen to your explanation; every case has its own law; what is food for the goose is poison for the gander."

This is the fundamental flaw in lay reasoning.

Science has two ways of setting it right. One is to classify the respective cases in which the expedient in question *seems* to be successful and *seems* to be unsuccessful: to classify these, not

on one basis, but on a hundred. In this way it will begin to uncover the accompanying circumstances which have been responsible for the apparent variations. This is the empirical way. The other way of science is to examine the case in the laboratory. When the empirical and the microscopic investigations corroborate each other, then it is that science looks up and announces, "The case is solved."

To win these solutions for ourselves is, indeed, out of the question; and yet, though we be unqualified to weigh the original evidence, at least we may qualify ourselves to *weigh the witnesses* — to decide whether their testimony is childish or expert; and if expert, whether final or tentative; and if tentative, whether safe for experimental purposes, or dangerous. This is practically what we are doing every day, in questions of business. But, in questions of health, either we never budge at all, or we begin by accepting the first rumour and end by rejecting the final word.

C

"To take thought for health is the surest way to fall sick."

This is both a mouldy delusion and a supine

attitude toward life. Away with it! Let us apply to it a little of that discrimination which we have just resolved upon. Let us suppose that, in every one hundred people, there are five who think about their health, *and that only one of the five keeps well.* One is enough. For suppose we stop to distribute the five among our original one hundred. Five thinkers we had, and one of these we have placed among the "well," of whom there are three. The other four thinkers we must therefore place among the sick, *of whom, however, there are ninety-seven.* Just tabulate these figures and see where they point.

	Well	Sick (or to be Sick)
Thinkers	1	4
Non-thinkers	2	93
Total	3	97

Thus, reading horizontally, we find that twenty per cent. of the thinkers keep well; and hardly more than two per cent. of the non-thinkers keep well. Reading vertically, we find that thirty-three and one-third per cent. of the well folk are thinkers, and hardly more than three per cent. of the sick folk are thinkers.

Of course, in assuming that one thinker in five keeps well, we were entirely arbitrary. On such

a subject there can be no genuine statistics. But I am persuaded that if the figures are unjust, it is to the thinkers — the Cornaros and Fletchers — and not to the common herd. It may be true that less than one in five of the thinkers keeps entirely well; but I believe that more than one in five of them — indeed, that fully nine in ten of them — keep *less ill than the common herd*.

But if not — if the cheerful skeptic will not concede even this — then let him invent some plan for changing the low estate of the ninety-seven doomed, *without the aid of thought*. At once the folly of his position becomes manifest: ninety-seven sick or going to be, and no hope, since thinking will only serve to hasten or aggravate their doom! Why — where got they even such immunity as they already have — immunity from plagues and epidemics? Is not this immunity the sheer product of thought — gigantic forces of thought, kept under a constant tension in government bureaus and boards of health? This, it is true, is vicarious thought; but after plague and epidemic are thus out of the way through vicarious thought, from eighty to ninety-seven per cent. of sickness, present or prospective, still remains — exclusively the product of private habit. Private habit is what public thinking can never adequately

deal with; and private habit is precisely the point at which this exhortation begins.

D

But to scruple for health is to become bound up in rules and to turn prude, if not hypochondriac. Life should be a more cavalier affair.

I admit that a man tied down by ninety rules — a man who has to nudge himself at every corner, lest he forget to deny himself something — is little better off than the man with a string tied to each of his ten fingers to keep him in mind of as many trivial errands. This picture may stand for the novice. But it will never do for the image of a regenerate man. A regenerate man is more like a river. The river does not halt with a nervous fright before each of its ten thousand obstacles. It flows over or around them by the calm guidance of a single absolutely unconscious force. Such is the force of a healthy attitude toward health. Is it not already vindicated? Time was, when we had to nudge ourselves to open our windows. But latterly, with most of us, the sense of smell has been enough. The windows have come open almost of their own accord.

Let us not confuse thinking with hypochondria.

Hypochondria is only the intellectual panic let loose in the brain after it is too late to think. Hypochondria has no method. It concerns itself only with random symptoms. Of sound hygienic thinking, on the other hand, the very essence is régime, not symptoms. And régime is what we are about to strive for in this, the second part of our book. On the man who is fortified by régime, the only effect of a random sensation is to make him stick the closer to his régime — not throw it overboard in a panic. In the long run, he trusts his régime to restore equilibrium. That is precisely what he made it for. The only change to which he will ever consent is the addition to his régime of any improvement of which he may, in the meanwhile, have got sure knowledge; and this he adds, not necessarily at the point where the random sensation made its appearance, but at any point where there is clear room for improvement.

In the régime of health there are four elements:

First, the proper selection of the raw material of manhood; that is, diet;

Second, the right propulsion and distribution of this material; that is, activity — and of course, activity involves inactivity, and the two constitute rhythm;

Third, the conscious selections of that part of

our environment in which we are to remain unconsciously steeped; namely, sunlight and air;

Fourth, the proper care of the mind which is at once the motive power and the crowning fruit of all the rest.

To the subject of diet, as the first in importance and the last to emerge from scientific chaos, we shall devote four chapters; two to rhythm, or activity, one to environment, and one to mind. In the midst of these will occur a parenthetical chapter — a chapter on nervines, which are anomalous in that they bear both on nutrition and on activity. Finally, there will be a chapter on régime itself, setting forth the application of these principles to the life of an ideal day, and including some details, such as the care of the teeth, not elsewhere touched upon.

Four topics:

1. Diet — that is, preparing the life stream.
2. Activity or rhythm — that is, propelling the life stream.
3. Automatic environment.
4. Mind.

IV

DIET

GENERAL PRINCIPLES

FIRST: does it not seem anomalous that disease should get in at all? — that with only three gates to guard and with all the army of nature behind those three, we should yet be continually getting news that hordes of aliens are mingling freely with the garrison up and down all the highways of the body! Has it never occurred to you that there are indeed but three gates? They are the nose; the mouth; and the lining of the body. These do not constitute the entire problem of health because they do not reckon for activity and optimism — those two assimilative forces; but they do present the strategical crux of the whole war between life and death, because it is through them alone that, in the first instance, both of these forces — life and death — get into the body. Here is the three-fold crux of the eternal struggle; and of the crux, perhaps the most crucial branch is the mouth.

ue, tuberculosis of the lungs may still claim the ggest death-roll of any single disease; it may o boast a more ruthless despatch in its opera-ns; but, not to mention the fact that tuber-losis is now in full retreat, often it is the ali-mentary diseases that predispose to tuberculosis; tainly it is they that produce bodily pain and ental depression, the worst consequences of ease; and, taken in the mass, it is they that ve always furnished the bulk of our ills. "It one of the axioms of physiology," says Pro-sor Chittenden, "that the majority of the eases of mankind are due to, or connected th, perversions of nutrition." Speaking for the ore intelligent class, therefore, it is perhaps a e estimate that four-fifths of our sickness is e to alimentary causes; and that four-fifths the alimentary causes may be removed. Why y they be removed? Because at the alimentary rtal for disease occurs the one entirely voluntary p in the whole life process. As Mr. Fletcher isively observes, of our thirty feet of ali-mentation only about three inches are under our n control; but with these three inches we nage to do enough bungling to frustrate the neficent operations of the entire thirty feet. The main problem of health is the problem of e balance between the demands of the body and

its supplies. There are moments when the feeblest of us, quite without the sinister aid of a stimulant, feels unaccountably fit. The meaning of such a moment is presumably that for once the body has received the right things in the right quantity and in the right combination, and that at all other moments the balance is imperfect in one respect or another. Could it *always* be perfect, how immense would be the cumulative difference! He was not altogether without warrant who exclaimed: "Render me infallible in my nutrition alone, give me only the clothes on my back — no employment, no friends, and no prospect of either — and in ten years I will put myself at the head of any enterprise you name."

There is a strong presumption that primitive man knew how to eat; that, in his own environment, his instinct was practically unerring. If this were not so, how did he manage so long to survive without doctors and without laboratories? But his day is forgotten; and since his day society has built for itself a new environment, out of which there have gradually emerged the following daft assumptions:

The King of the Universe issued a *fiat* that when the clock strikes for a certain hour, the stomach must be fed; if one kind of food prove beneficial to-day, the same kind should be taken

to-morrow; since a pound of beef furnishes a degree of sustenance, as many pounds as a man can eat must be still more sustaining; if hearty eating enables a man to walk thirty miles a day, he should eat as heartily when drooping all day over a desk; finally, and above all, if the appetite be in doubt, *eat*; do not even humour the jade when she positively cries out for a respite.

How irrational all this is, becomes apparent when we stop to reflect that food is fuel. Would we feed another fuel-consuming engine on these principles? Would we stoke an engine merely because the clock strikes nine? Would we give it necessarily the same ration at nine o'clock to-day that we gave it at the same hour yesterday? Would we stoke it as incessantly when it has merely to furnish heat for the directors' room as when it must keep the entire factory in full operation? Intelligence answers these questions in the negative. Instinct would make the same answer for the body, if instinct had a fair share in our stoking deliberations. Meanwhile, intelligence must come to the rescue of instinct; and it is the purpose of these chapters to show how intelligence, in the form of science, is making preparations to do this; and how instinct may be won back to the support of intelligence.

First, Science: We have begun with a safe

proposition: that food is fuel. But Science, true to its method, has not been content with this superficial proposition. Science has gone on to analyze it. The first result of her analysis, in logical order, was to discover the measure of fuel-values. Equal bulks of different foods do not necessarily furnish equal heat. An ounce of butter, for instance, is, in this respect, equal to a couple of thick slices of bread, or to a three-pound watermelon. Accordingly, science has labelled each food according to its potential heat instead of its weight; has measured it by calories instead of ounces. These calories, or units of heat-energy, are given off through the combustion, or oxidizing, of the food after it has been distributed by the blood to the various members of the body. It is in those members, therefore, that its real service begins. The residue of the food — that part of it which will not burn — consists of mere water and fibre. The fibre does not reach the members. It passes through the alimentary tract without properly entering the real body of a man at all; the water, however, does enter, joining the circulation and completing the circuit of the body, thus helping to cleanse it, but of course furnishing no energy.

But if we follow the nutritive parts — the parts which hold eventual commerce with the cells of

the body — we shall find them performing *two* functions instead of one. And the next service of science, in logical order, is the classification of food-elements according to these two functions. Burning is, after all, but one function. There is another, even more important than burning, namely, building and repairing. The body is more than fuel. It is bone and fibre and muscle; and to the renewal of these, a special food — or, rather, a special *element* in food — is delegated; an element less comparable with the coal of an engine than with the steel and the iron of it which keep intact the hinges, valves, and shafts of it.

Of repairing material there is but one class. Its name is *protein*. Of mere fuel, however, there are two classes; their names are *fat* and *carbohydrate*.

The term “fat,” however, as referred to nutrition, is misleading. It is not the peculiar office of the fat element in food-stuff to form that stored fat of the body called “adipose tissue.” Adipose tissue, or human fat, may be manufactured from any or all of the food elements — fat, carbohydrate, or protein. Adipose tissue is really a kind of dispersed coal-bin. It is merely the fuel form into which the body converts its superfluous material, and stores it up for future consumption.

Thus far, then, we have noted the unit by which

all foods are measured: the heat-unit, or calorie; we have noted the two functions of food: fuel and repairs; and we have noted the three forms or elements of food: protein (which repairs), and fats and carbohydrates (which burn only). Into these three elements, since all are fundamental, foods are usually classified: protein, fat, carbohydrate.

In the present chapter we need not pause to tabulate, on this three-fold basis, the great magazine of foods which the earth brings forth. Suffice it to give a few familiar examples. White of egg and lean of meat, for instance, are characteristic protein. Cream and butter are characteristic fat. Starches (as in bread) and sugars (as in fruit) are exhaustive of the carbohydrates. But, of course, it does not follow that these three elements are often to be found entirely separate. Few foods are without at least two of them; and many contain all three.

And yet a classification is only a classification. In every class, it remains to be observed, are many forms, delicately differentiated: of protein, many forms; of fat, many; of carbohydrate, many; fruit in many kinds; cereals in many kinds; nuts in many kinds; vegetables in many kinds; flesh of beast, flesh of fowl, flesh of fish.

And why so many, each with a unique flavour

as distinctive as the face of a man? Here, at last, Science pauses. To be sure, it knows a good deal more than what has just been set down — a good deal that is peculiar to each food, especially in the distribution of salts, but not enough to enable it to predict the effect of each upon different individuals. And prediction is the chief end of Science — the chief end, indeed, toward which we are labouring in this chapter. Nevertheless, Science, true to its humble spirit, while seeking further light, quietly records the mere presumption that Nature probably has some good reason for her remarkable variety. Each form in which each element appears may have a separate office to discharge; not a fundamental office, to be sure (the fundamental offices are still but three), but an incidental office. Nor need an office be the less indispensable for being incidental, since even fuel cannot be set burning without a match, nor food become operative until it is digested; and the idiosyncrasies of digestion — that is to say, those apparent differences for which the reconciling law is not yet found, but inevitably shall be found — are notorious. Here, then, we meet that margin of the yet unknown, on which we may not too rashly trespass. What it warns us against, in particular, is committing ourselves arbitrarily to any circumscribed class of food, though it be



a class furnishing all three of the fundamental elements; for we cannot know what incidental properties we may thereby be excluding, the want of which, owing to some idiosyncrasy of the individual, may prevent the fundamental three from being smoothly appropriated.

But because we recognize this limit to our knowledge, we must not conclude that the knowledge we now possess is incapable of practical application. *Already it is enough to furnish a fundamental criterion for diet.* It puts an end to the vague and irresponsible classifications of foods as "good and bad," "wholesome and unwholesome," "rich and plain," etc. Nothing that is food is always good, and nothing that is food is always bad. The virtue of a given food is wholly dependent on the current demands of the body, and the current demands of the body are dependent, among other things, on what it has been supplied with up to the moment of eating. If, up to that moment, the body has been over-supplied with two of the three elements, more of these will be bad, no matter how plain; and the third element will be good, no matter how rich. In this there is system enough to explode nearly all of the contradictory fallacies cherished by your hypochondriac. It is not true, for instance, as he, at one moment alleges, that what is food for

e goose is poison for the gander. What *is* true that because of unknown incidental qualities, apples may better agree with one, and cucumbers with the other — but both of these foods are, predominantly, carbohydrate; veal with one, and cottage cheese with the other — but both of these are, predominantly, protein; olives with one, and cream with the other — but both are, predominantly, fat; and it remains good of all human geese and ganders that they are made of the clay; compounds of adipose tissue and protein; combinations of protein, fat, and carbohydrate. Conversely, it is equally untrue, as at other moments the hypochondriac alleges, that the set régime which avails for A ought to avail for B. The accumulated deficiencies in A's diet, as well as his daily behaviour and consequent utilization of the three elements, may be different from B's. On the same principle, it is untrue that vegetarianism, or even fruitarianism, necessarily fails in practice. Most of the failures of vegetarianism, for instance, occur where its only principle has been the exclusion of flesh food — not the combination of a proper threefold meal without the participation of flesh food. Nor is it true that what will alone sustain life longer, such as some cereals, is, under all conditions, the better food. Such a food merely comes nearer

to a complete combination of the three elements in one article of diet; while the less complete article, properly supplemented, might furnish a still better combination. It is this proper supplementation of one element with two others which constitutes the basic problem of diet. Its solution reconciles the goose-and-gander theory with the arbitrary-régime theory, as gravitation reconciles the behaviours of balloons and cannon balls — one law through many shapes.

The next question is: What wrong do men do which can be corrected by the application of such knowledge as we have? The answer is, two wrongs: first, men eat too much; second, of the tissue-building or protein element, of which meat is the type, men eat more than proportionately too much.

This sounds like old news, but it is not. In the sense of "*law*," nobody knew these facts — these two causes of disease, namely, excessive eating and unbalanced eating — until they were analyzed; and their analysis is a recent achievement of science.

In order to throw the truth into relief, let us consider the error. First consider the question of mere excessive stoking. An unscientific observer, speaking in perfect good faith, may yet speak falsely; for an unscientific observer is constantly

failing to distinguish fact from inference. He may think that he eats more or less than he really does. For one thing, he does not understand the difference between bulk and value. Ask an average man to enumerate the articles which he has consumed at one meal, and very likely he will mention the correct quantities of bread and coffee, but will be very vague as to the butter and the cream; and the butter and the cream, though comparatively small in bulk, may yet furnish fifty per cent. of the entire value of the meal — certainly no small margin of error. Even of the mere bulk, for another thing, a man's chief gauge is merely his sensation of satiety; and this sensation may often fluctuate independently of the real character of the meal. The same meal will not always affect him the same way. The point of satiety on the thermometer of sensation may, for some reason, move up or down, while the level of the meal remains stationary. If the point of satiety keep a little above the level of the meal, the meal seems a light one.● If the point of satiety keep a little below the level of the meal, the meal seems a heavy one. And both seemings may be false.

With apparently nothing but this crude and erroneous method of observation to back him up, two generations ago, a Dutch physician, out

walking with his child, called the lad's attention to a passing hay-load as big as a mastodon. "There, my son," said he, "is the equivalent of what one man eats in a year in excess of what he needs."

It goes without saying that this figure of speech was never intended to be taken literally; but even after every allowance has been made for its figurative character, it remains an enormous exaggeration. Because, for an excess so great as this, there would be no way of accounting.

The fuel economy of the body is governed by an algebraic equation, as follows:

$$\text{Energy eaten} = \left\{ \begin{array}{l} \text{energy spent in voluntary work (muscles)} \\ + \\ \text{energy spent in involuntary work (heart, lungs,} \\ \text{etc.)} \\ + \\ \text{energy spent in heat (a by-product, according to} \\ \text{one theory)} \\ + \\ \text{energy stored up in liver and adipose tissue} \\ + \\ \text{energy lost in excreta} \end{array} \right.$$

Where, in this equation, is there an opening for so huge an excess as that alleged by the Dutch physician? Remember, he was dealing, as we are, only with the average man. Now the system of the average man is not so far gone as to allow fifty per cent. of his fuel to pass through him unap-

propriated (energy lost in excreta); he cannot double his weight every year or two (energy stored up); we have already postulated, when we named him "average," that he does not do twice the work of another (energy spent in voluntary work); nor has he yet been seen to burst into flame (energy spent in heat). There remains but one way in which to account for the alleged excess, namely, a glut maintained *in transit*, over and above what is accounted for in the five ways just indicated.

But so great a glut floating about the system in transit, *growing every day at the same enormous rate* — would it not soon burst a man into fragments if not into flames? Recent experiments by Professor Benedict have made it impossible longer to believe that a man whose system will make use of (say) 3,000 calories a day can stoke himself with 4,000 calories *every* day, any more than a furnace working at the rate of 3,000 pounds of coal a day can take in 4,000 pounds every day.

And yet, exaggerated as may be the popular notion of the extent to which men overeat, the extent to which they actually impair themselves thereby is not exaggerated at all. On the contrary, it is *underestimated*; else it would long since have become an object of disgust instead of a boast. Let us adopt the hypothesis to which

Professor Benedict has forced us — that after adipose tissue is accounted for, any further excess of nutriment must remain in the system as a glut in transit. Apply this hypothesis to a man of such size and habits that Nature would demand for him precisely 3,000 calories per day. Suppose that, some day, in an obsession of gluttony, this man stokes himself with 4,000 calories. This performance he cannot repeat every day, it is true. But suppose that, the next day, instead of offsetting the error by stopping at 2,000 calories, he only returns to his legitimate ration of 3,000 calories; and suppose that he maintains this rate of consumption for the rest of the year. Then, on our adopted hypothesis, the man's total excess for the year will be only 1,000 calories. Prorated, this comes to a paltry three calories per day. But the injurious effect is by no means so light as this figure seems to indicate. For the entire excess of 1,000 calories, which was first taken in, has been *carried forward every day of the year*; and every day of the year, without intermission, has been having its effect. Each separate meal has been exactly 1,000 calories in excess of the allowance that would restore equilibrium; that is, 1,000 calories in excess of present demands. So that instead of dividing 1,000 by 365 to find the daily injury, we ought, by rights, to *multiply* 1,000 by

365, to find the yearly injury. The product is 365,000 units of effect, produced every year from a single original 1,000-calorie transgression maintained perpetually.

Both the man and the furnace, therefore, may be overstoked once, and continue overstoked indefinitely. After all, the parable of the hay-load remains figuratively true; for the unhappy effect — the effect of always keeping a little ahead of present needs, including the needs of storage — will, in the long run, be about as oppressive to the system as the weight of a mastodon.

Thus far we have been considering merely the glut of ordinary fuel. Let us now consider the protein element alone. Of this element, at any rate, our excesses have never been overestimated, either in amount or in effect. To illustrate, let us return to the engine. Of repairing material, an engine requires by no means so much as it does of fuel. One of the unique achievements of recent years has been to carry out this analogy in the case of the body. Owing to recent laboratory experiments by Professor Chittenden, at Yale, it is no longer to be doubted that men have been accustomed to include in their diet, every day, from two to three times as great a proportion of protein as their bodily repairs justify. They have allowed the protein

element to constitute from twenty to thirty per cent. of the entire intake. Yet, in the diet of a squad of soldiers, Professor Chittenden reduced the protein element to about ten per cent. of their total intake, with the following results: by outward observation, it was evident that in general the men were more fit than before; by laboratory observation, it was determined that, with respect to protein, the demands of their bodies had been exactly met by the supplies. Therefore their previous excesses above this ten per cent. allowance had served no purpose but to produce clinkers in the human engine — and iron clinkers at that. Professor Chittenden is of opinion that these iron, or, literally protein, clinkers are far more damaging than mere fat or carbohydrate clinkers. Nature does the best she can with both; proceeding as far as she can with additional adipose tissue, and ramming the residue about the insulted system; but thereby, in a few years, she beats and grinds out of our tissues that softness and resiliency which should be their possession until old age.

But there is worse behind. The clinkers of an engine only obstruct. The clinkers of the body *decay*. Before Chittenden's contributions to the subject were made, Metchnikoff, in Paris, had already thrown into terrific relief the known fact of autointoxication, or self-poisoning. This

is a process carried on by putrefactive germs, namely, anaërobes — enemies whose method is to fasten by billions upon the *tissue-building foods*, but with infinitely the worst effect on such as come to us in the form of flesh, and, having fastened upon these, to set up a distillery or carrion factory therein after their descent into the intestines. Through the walls of the intestines the poisons thus generated are absorbed and enter the blood. The resulting condition — autointoxication — is now pretty widely suspected of lurking obscurely at the bottom of many of our more specific alimentary ills, bursting up and suffering transmutation into the form of one or another of these ills according to what organ or what process in our bodies it finds most vulnerable.

Of all the effects of overeating, then, the most dismal and the most universal is probably autointoxication; and of all the foods which are over-eaten, the most fatal are the proteins or tissue-builders.

The question arises: since flesh food is the most prolific in autointoxication, and since the tissue-building element may be found in other forms, why should not flesh food be abandoned out of hand? Perhaps it should. But we must not forget the warning which we found in the very fact that one element can be found in so many forms.

The flesh form of protein may, or may not, have an independent mission to discharge. The question is not definitely settled. Until it is settled, we must be content with the record: which shows that, in some cases, abandonment of flesh food has seemed to work miraculous benefit, and, in some cases, has seemed to work grievous harm. There has been a lively but thus far unprofitable debate on the question whether or not primitive man was carnivorous. The fact may perhaps be (though I claim no authority for the hypothesis) that, in some of his migrations, man once found himself for the first time face to face with this alternative: flesh food or starvation; and that after many generations of battling with the difficulties presented by flesh food, he had, partly — but only partly — undergone the change of structure necessary to its appropriation; so that we, his descendants, have been left but half evolved to that condition — some doing very well without flesh food, and some being strictly dependent upon it. At all events, so far as the record yet shows, flesh is one of those foods which cannot, by everybody, be arbitrarily banned.

Meanwhile, a cure for autointoxication has been proposed by Metchnikoff. It is, inoculation with friendly germs called *aërobes*, grown in such lactic ferments as buttermilk, yoghourd, etc. A

cure for “clinkers” also — or rather a preventive — has been proposed by Chittenden; namely, mere desistance from the cause — desistance from excessive and unbalanced eating. Chittenden’s expedient is, of course, a partial preventive for autointoxication as well, since it demands an especial reduction in the tissue-builder. It is the tissue-builder alone, remember, that invites anaërobes, and the invitation applies only to the *excess* of that food which we maintain in our bodies.

V

DIET

THE PERSON AT TABLE

ALL this is very fine. We have ascertained the general principles governing foods; namely, that we must partake of three elements; and that, of those three elements, the tissue-builder, or protein, must not exceed about ten per cent. of the total food value. We have laid bare the two leading vices of the average man: general overeating, in the sense of maintaining a glut; and, especially, the overeating of foods that are rich in protein. But the next question is, how to prescribe a man's diet in such a way as to rid him of these two vices.

Do you not see how impossible this is? The problem of diet is not without a solution; but the solution is not to be had by arbitrary prescription. Arbitrary prescription is, in fact, quite out of the question. In the first place, who will tell you how often you stretch in a day; how many steps you take; how many of these are uphill, etc., etc.?

Without these data, the physician cannot determine your expenditure of energy; until he does determine this, he cannot estimate your demand for fuel; and, to determine this, he must keep you locked up in a copper chamber called a calorimeter, away from the very enterprises upon which your energy is wont to be expended. And even were this treatment tolerable, there would still remain the question of personal idiosyncrasy. *Nothing will avail which does not appease your appetite.* If your appetite be not appeased, your digestive secretions will simply go on strike; and then your food, however meritorious its claims, will be powerless to do anything for you. Cases are on record of prescribed diets which failed — failed because they irked the patient; and cases of patients who proceeded to restore their own health by taking the bit in their teeth and doing as they pleased. This begins to look like the devil and the deep sea. Is it not by doing as you please that you first fall into the hands of the doctor? Do as you please, and half the time you go more or less astray; do as the doctor pleases, and some of the time your appetite will balk.

At this juncture, enter Mr. Fletcher. For he continued to do as he pleased, and yet eluded both the devil and the sea.

Mr. Fletcher is not a scientist. He is a free-

lance, with an unusually acute faculty for observation, or, in its better meaning, common sense. His reception became favourable among scientists more rapidly than among laymen — a very proper order of events, since new light should sift through expert minds before we of the laity stake too much upon it. At any rate, Mr. Fletcher has been made a member of the American Association for the Advancement of Science. Scientific medicine, says Oliver Wendell Holmes, “learned from a monk how to use antimony; from a Jesuit how to cure agues; from a friar how to cut for stone; from a soldier how to treat gout; from a sailor how to keep off scurvy; from a postmaster how to sound the Eustachian tube; from a dairy-maid how to prevent smallpox; and from an old market-woman how to catch the itch insect.” Moreover, scientific medicine learned from Garcia, the music master, how to examine the larynx. But for Mr. Fletcher it seems to have been reserved to show scientific medicine, more or less methodically, how to balance a meal without doing violence either to natural desire or to the sense of humour; in a word, how to rehabilitate the instinctive thermometer of appetite. After all, you need not sit in a copper chamber and have your heart-beats measured, nor call in a chemist to count the calories in your meal. Mr. Fletcher has made

unnecessary all such harassing business, by the rediscovery of the discriminative powers of the palate.

At this statement, many a reader will start. Despite the publicity which has been attached to his name, there are educated persons who still think of Mr. Fletcher as the man of forty chews or seventy chews or some other arbitrary number. It is, in fact, not chewing at all that Mr. Fletcher has come into the world to preach, but discrimination; not arbitrary rules, but the precise opposite of arbitrary rules. *More discrimination through pleasure; more pleasure through more tasting* — perhaps this phrase comes as near as we can get to a succinct expression of his whole idea. It is true that more tasting can be had only at the cost of more chewing, but it is the tasting, and not the chewing, to which the distracted attention of the modern man is invited back, therewith in leisure and rumination to restore his composure — his composure and whatever else waits upon good digestion. The average man, as he is now constituted, or, rather, as his civilized habits now constitute him, bites with an effort, and, after a certain measure of tasting, swallows with an effort — two efforts, the second of which is unwisely mitigated, perhaps, with a wash of liquid. What Mr. Fletcher does is to bite and to taste.

The swallowing he allows to take care of itself. It is the tasting that should be conscious; for taste is one of our senses and was given us for a purpose. All the other operations should be as unconscious as breathing.

How can so simple an expedient furnish so great a solution? Thus: There are two doors to the mouth cavity, are there not? — the front door which admits, the back door which releases. Very well; taste is the keeper of both. To keep out of the front door whatever taste does not like; to keep from escaping down the back door whatever taste does like, *until its liking has been satisfied to the last scruple*, and, if a discriminated residue of fibre remains, to eject it — these are the prerogatives of taste. Refusal is a great prerogative. If you boast that you can “always eat anything,” you have a morbid appetite; beware of it. If you like the same thing every day, you are in an equally sorry plight. Even if you get an attack of conscience, and suddenly take to chewing like a Trojan, yet, if you confront your jaws with an arbitrary task — accept phlegmatically whatever the hit-or-miss officer of the kitchen provides, and then, with impartial diligence, chew it, and chew it, *regardless of accompanying sensations* — you have not yet achieved the discrimination which is at the core of this reform. *You will become a free*

man only when, by the comparative flow of saliva and the comparative sensations of taste, you are led to prefer some parts of your meal to others, and to put aside, without fear of the cook, anything for which you do not find your palate eager and your saliva generous. This is the business of taste. Therefore, do more tasting. If there is no other way, settle down to it deliberately as a new mission. Swallow nothing which the genuine "watering of the mouth" has not reduced to a condition of complete liquefaction; even then do not try to swallow it — it will swallow itself. Once sufficiently cultivated, this discriminative power of taste will not only refuse to let you swallow what is not liquefied, but will tell you in advance what is not going to yield graciously to liquefaction, and refuse to let you receive it at all.

Finally, whenever the appetite is in doubt, do not eat. Eat only when your appetite knows its own mind, and will rejoice for food, like the appetite of a soldier after marching. Do not mistake restlessness for hunger. Perhaps it is relaxation that you need, or exercise, or sleep, or a change of scene, or the draught of water which you neglected between meals, or the making of an apology, or any other of the bodily or spiritual needs which a civilized man is forever in danger of neglecting. But it is not hunger unless the

appetite says so with decision, and, in the decision, includes a preference for something in particular.

The benefits thus to be secured are: the subsidence of the glut in the system; the reduction of the protein element to the real demands of the body; the discrimination, as between one food-form and another, of just that form which will appease the idiosyncrasy of the individual. This last is what especially transcends the powers of any laboratory. Not to defeat it, Professor Chittenden, with his squad of soldiers, catered to what he understood to be the appetites of the men, so far as he *could* do this consistently with arbitrary prescription. And Professor Fisher, with his nine students, refrained from arbitrary prescription altogether. The only rule he consented to impose was Mr. Fletcher's rule: "enjoy yourself more — not less." Yet with the nine students, the physiological results were at least as good as with the squad of soldiers, while the psychic results were better; no student became restive or thought himself a martyr to science.

To Mr. Fletcher's régime, three objections have been raised. The first is that Mr. Fletcher, like the Dutch doctor two generations ago, holds an exaggerated notion of the extent to which an average man may thus reduce his total diet. This may be true; but it is irrelevant. The

point is not to reduce your diet; the point is to apply to it a disciplined and sensitized appetite, and to let the reduction — or the increment, if such it turn out to be — take care of itself.

The second objection is, that the degree of mastication required for Mr. Fletcher's régime must degenerate into an elaborate bore. If this be true, it is fatal; because a bore is a condition of misery, and only a condition of pleasure can assure the needful secretions. But there are cases of the second attempt at Mr. Fletcher's régime proving successful because made with the clear brow of a cavalier, after a first attempt had been frustrated by too anxious a conscience. And so far as mere loss of time is concerned, saliva flows faster after it is strengthened by use; and Mr. Fletcher spends no more time at his meals than other men.

The third objection is that the alleged reduction of protein — probably the leading benefit — must have been brought about by making that element offensive through overmasticating it. No doubt it is a fact that protein requires less attention in the mouth than do the carbohydrates, because it is mainly disposed of in the stomach. In fact, it is definitely known that excessive chewing of meat will actually produce indigestion. This might constitute a complication to the pro-

posed régime, if that régime were a matter of impartial chewing; let us keep in mind, however, that it is not a matter of impartial chewing, but a matter of relentless tasting. Meat, though it be mainly *digested* in the stomach, is as exclusively *tasted* in the mouth as is sugar. With meat, as with every other substance, from sugar to sand, it is the business of the sense of taste to defend the stomach from whatever would prove contrary to its interests. It is around the organs of taste at the back of the mouth that the last cordon of defensive muscles is stationed. You can feel their furious resentment whenever you attempt to get by them with a bitter pill, or even one of those tasteless capsules which Nature never included in her original calculations. Now the fact that, under the tasting régime, less meat gets by these muscles than under the usual hastier methods, you may explain, if you please, on the theory that the meat has been made offensive by excessive chewing; but you may better explain it on the theory that, without being offended, the palate is sooner satisfied. On closer analysis, it may turn out that even the tasting régime does not subject the meat to so much chewing as other foods; but merely to more chewing than was formerly the way with meat. This is a fine question. I do not know the answer. What I do

know is the record of the nine collegians. By that record I swear; and that record shows as follows: (1) less protein was eaten; (2) the protein that was eaten was not less enjoyed; (3) not indigestion, but improved digestion ensued; (4) a diminution of intestinal toxins ensued; (5) a still more wonderful improvement in endurance ensued; (6) the proportion of protein approximated gradually, and eventually reached, the ten per cent. minimum which Professor Chittenden, by more arbitrary methods, had determined to be sufficient for all the uses of the body.

Mr. Fletcher claims for his discovery the positive authenticity of Nature. This claim may or may not be well founded; but there is a tremendous presumption in its favour. Its particular mission is to overcome hasty and indiscriminate eating; and if we cannot say that Nature intended man for a slow and discriminating eater, at least we may say that if Nature ever dared to entertain such a plan for her children, civilization would surely have frustrated that plan. Should Nature stand incarnate in the market-place and proclaim deliberation with trumpet tones, the goings-on in the market-place would still suffice to frustrate and traduce her. It is not merely the obvious influence — such as the train

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to be caught — that induces to this perverted economy of hasty eating. The problem of life is more subtle. The worst influences are subconscious. From these, even children are not exempt. For instance, there is the subconscious urging, not toward a particular engagement, but toward the great, vague fact of engagements in general. I have often detected myself hurrying a meal on behalf of some unpleasant duty a week in the future. Then there is the subconscious urging toward the next course in the meal. Then there is the mere business instinct which (still subconsciously) urges a man to devote himself efficiently to the set business of the occasion, which is to despatch the meal with as little fooling as may be. These are external solicitations. But these are not all. Others have been adroitly introduced into the very food itself. If you have ever gone out into the bush to pick blueberries, surely you have found yourself eating them, *two or three at a time*, and with huge relish; but once seat yourself before a heaping dish of those same berries, to be ladled into your person with a spoon, and you will balk at the task, until you have heaped them with sugar — an element in which they are already rich. The artificial extraction of sugar out of the heart of the food in which it already abides, and its reconcentra-

tion

on the outside; the food itself no longer hard-
ed by foraging, and its sweetness no longer
learned by chewing; all set before us in
concentrated abundance; the implements for its
absorption lying ready beside it; its stub-
b constitution, like Hercules in the service of
Phaëte, beguiled away by the soft art of cook-
—under all these influences, why should
it not be an end to the brave art of chewing?
Perhaps I can bring home to you the subtle per-
ception of these influences, if I can get you to
remember some rare occasion from which they
have been absent. If, for instance, you have
permitted yourself such an indecorum as to
sit at the table early, with an unswallowed morsel
in your mouth, you will have had the genuine
negative experience. For that morsel lingers
in it literally melts out of consciousness and
slides down the throat without swallowing; its
influences are beyond anything I have experi-
enced since childhood — or at least since a well-
remembered glass of milk at a farmhouse in Hol-
land, which I exulted over in the midst of a long
afternoon's wheeling against a stiff Dutch wind.
Instead of resorting to the plethoric dining
table, have you ever stood upon the last platform
of the train and, unconcerned for anything future,
whether remote or near, munched a few simple

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edibles taken from your pocket? If so, you must have observed three facts, though you had taken no thought to promote them: (1) the food was more thoroughly insalivated than usual; (2) it was more delightful; (3) it contented you at a point on the physiological thermometer where the possibility of quitting a loaded table would never have entered your head.



## VI

### DIET

#### THE PURVEYOR

**T**HE problem of diet, then, if approached as a matter of arbitrary prescription, is hopelessly complex; but if approached as a matter of *disciplined* appetite, becomes, at any rate, much simplified.

And yet there is a sense in which a certain amount of prescription is still necessary, not to say unavoidable. The man at table cannot be consulted as to what shall be placed before him. His dinner comes out of the larder; and somebody in the larder had to put it together. The question is, shall that person put it together on sound principles? Nature's larder, wherefrom she fed the primitive man, was not without principles. Man exercised a choice, it is true; but his *range* of choice was settled in advance. He could choose nothing which Nature did not exhibit; and Nature exhibited nothing but precisely those things which originally made man. These could hardly be calculated to *unmake*

him, by dazzling and misleading him. That which environment was to the primitive man, the larder and its presiding genius must be — or be taught to be — to the modern man. And it were a pity if the science we have just learned could provide us with no light for duplicating, in a measure, the original simplicity of Nature.

There are two extremes. One is to place no check on the palate whatever; the other is to check it arbitrarily — irrespective of its divine faculty for spelling forth the variable needs of the body.

Consider the first extreme: to place on the table the whole magazine of the world's viands, in order that the palate may have an unrestricted choice. This would surely be an embarrassment of riches. Variety itself, when thus excessive, may promote overindulgence, because each viand, having a distinctive flavour, makes a fresh appeal and postpones the sense of wholesome satiety.

Consider the second extreme: to saddle the person at table with a hard and fast dietary. The difficulty here is to be right; and, in the present state of knowledge, this difficulty seems insuperable.

It is sometimes cavalierly proposed, for instance, that we return outright to our primitive diet. But who shall tell us what that diet was? True, for one thing, it was uncooked. But to quit cooking can avail nothing, unless we also quit the foods

that require cooking. The office of cooking is to render digestible those things which, without cooking, are indigestible. Nor is there any good reason to suppose that these things — raw potatoes, for instance — were more digestible to our forebears than they are to ourselves. The art of cooking was doubtless discovered by accident; but, once discovered, doubtless it led to the comparative neglect of those primitive staples which are good without cooking, and to the increasing cultivation of those which are not good without cooking; for the latter were found to lend themselves more conveniently to transportation, storage, and distribution in a crowded population — ends which the changing habits of men rendered more and more desirable. So long, therefore, as these cultivated commodities are used, we must continue to cook them.

Again, it is sometimes suggested that we should eat only — or mainly — those foods which grow in our own climate. Now, if one fancies that Nature anticipated the various migrations of man, and at each stage stood waiting for him with a new diet, adapted especially to the physiological reactions of the new climate, one will, of course, accept this proposition with entire content. But the more rational supposition is not that Nature anticipates the goings and comings of man, but rather

that man accommodates himself as well as he can to what he finds in Nature. When no longer he can secure bananas and cocoanuts (if these indeed typify his first diet), he will take to whale-meat, and with that, make shift as he may. True, the frosty Esquimau needs more fuel to warm him than does the sunburnt Arab; and blubber, being a fat and therefore concentrated, can be ingested up to a high measure of fuel value without exceeding the mere geometry of the stomach; and on the other hand, in tropical countries, where bodily heat comes easy and laziness abounds, not so high a measure of fuel value is necessary; and those foods, therefore, which, like fruits, are bulky and dilute, answer all the purposes of nutrition, at the same time facilitating the needed perspiration under a hot sun. On the whole, then, diet according to climate, so far as it is not a mere matter of propinquity, is merely a problem in the conservation of energy. The more we spend the more we must eat, and after a certain point, this must be concentrated in order to fit conveniently into the stomach.

Again, it is often urged that the dominant position in all dietary schedules belongs irrevocably to animal foods; that other foods should be allowed only an incidental position — this for the alleged reason that animal foods alone possess the prop-

ty of making of the eater a brave man. What, then, shall we say of the herbivora cited by Professor Lull — extremely ferocious fighters with horn and tusk? What shall we say of the higher ones, cited by Russell in his book on Strength and Diet — formidable fighters, many of them, but not eaters of flesh. What shall we say of the Turkish soldiers cited by Gautier — men, both brave and strong ("strong as a Turk," you say), on an abstemious diet of pillaff of rice and figs, with water and lemonade for beverages, and scarcely any meat? Nor needs it an erudite authority to inform us of the Japanese and their recent manifestation of individual and collective bravery. The entire notion that meat is especially fruitful in courage seems like a relic of the savage superstition which thinks to win the courage of an enemy or the virility of an ancestor by eating out the enemy's heart, or by using the ancestor's skull for a drinking-cup.

Again, it is urged that, if not courage, at least endurance must be dependent on some peculiar range of the proteins, fats, and carbohydrates. Ordinary proteins, fats, and carbohydrates — these are surely too common! But straightway we are confronted by confusing evidence; mighty farmers who make free use of meat; Italian ditch-diggers who thrive on bread and macaroni; a

group of vegetarians who, in proportion to the number of their entries, take more places in long distance contests than the rest of the field; and I know of a physical trainer, fifty years old, who can still run his ten miles within the hour, though for years he has eaten almost nothing but fruit and nuts. If any one diet has shown itself inferior in respect of endurance, the recent Yale experiments point to flesh as that diet. Yet the Yale experiments leave this particular question still open. The fault may still lie with the mere excess of protein in which flesh-eating so often results, and not with the flesh as such.

Nor does it follow that because one diet is good for physical workers, it is not good for mental workers as well. True, when we assumed, without proof, that only meat gave strength, we likewise assumed that, for men living the sedentary life, much meat was *too* strong. And certainly, *much* meat *was* too strong, and still is — both for athletes and scholars. If the scholars were apt to be the worst sufferers, it was simply because, in their passive way of life, there was not enough sweat to eliminate the poisons of their excesses. But, after all, this brings us around again to the law of the conservation of energy. The less one works, the less one should eat; and brainwork requires so little fuel that the calorimeter fails

erly to record its expenditure. Even of the min-workers, the expenditure of fuel is measured almost entirely by *physical* exertions.

Of exclusive diets such as these, many are urged. Those who urge them are usually partisans, full of chemical epithets to project against rival diets, but studiously silent as to the chemical peculiarities of their own.

And yet there remains the need of simplicity to check the endless chain of new enticements to the appetite. On the one hand, we dare not puzzle and excite the appetite; on the other, we dare not curb it arbitrarily. The solution, then, seems to be this: We must drive our variety mainly tandem and only partly span-wise, so to speak. We must read before the appetite a simple variety at the single meal, and a wide variety in the procession of meals; but in such a way that the appetite may remain, throughout, the controlling factor.

The problem sounds complex, but is really simple. For, no matter how great the eventual variety, almost all individual meals will fall naturally into three leading types:

- I. The bread-and-butter, meat, and garden vegetable type.
- II. The bread-and-butter and garden vegetable type.
- III. The fruit and nut type.

The problem of eventual variety is solved by making use of all three types. The problem of

the individual meal — its variety and its balance — is solved by furnishing thereat a full deploy of protein, fat, and carbohydrate, without wandering too far from one type.

For both purposes, let us study the epitome of the world's store-house which is spread out upon the next two pages. This consists of a schedule of foods, each named in such a quantity as will furnish exactly one hundred calories of energy. Such quantity is called, for convenient reference, a "standard portion"; and opposite each designated "portion" is set down, first, its weight, in both grammes and ounces, and then, in three columns, the distribution of its one hundred calories among the three elements: protein, fat, and carbohydrates. Thus:

|                                       |              |      | CALORIES |     |               |
|---------------------------------------|--------------|------|----------|-----|---------------|
|                                       | Grammes      | Oz.  | Prot.    | Fat | Carb-<br>hyd. |
| Mashed potatoes (creamed) one serving | 89           | 3.14 | 10       | 25  | 65            |
| Total . . . . .                       | 100 calories |      |          |     |               |

The purveyor's first business is to understand concentration. In providing a given number of calories it makes a difference whether he choose bulky or concentrated food. Let 2,500 calories stand as a rough estimate of what an average man, leading a sedentary life, may be expected to consume in one day. Let us postulate, also, that



|                                                    | Described       | Gra. | On.  | Pro-<br>teid | Fat | Carbo-<br>hydrate |
|----------------------------------------------------|-----------------|------|------|--------------|-----|-------------------|
| <b>FLESH FOODS (AND DERIVATIVES)</b>               |                 |      |      |              |     |                   |
| Beef, round, boiled (fat) . . . . .                | Small serving   | 36   | 1.3  | 40           | 60  | 00                |
| Beef, round, boiled (lean) . . . . .               | Large serving   | 62   | 2.2  | 90           | 10  | 00                |
| Beef, 6th right rib, roasted . . . . .             | Half serving    | 18.5 | .65  | 12           | 88  | 00                |
| Calves'-foot jelly, as purchased . . . . .         |                 | 112  | 4.   | 19           | 00  | 81                |
| Lamb chops, boiled, edible portion av.             | 1 small chop    | 27   | .96  | 24           | 76  | 00                |
| Pork, ham, boiled (fat) . . . . .                  | Small serving   | 20.5 | .78  | 14           | 86  | 00                |
| Clams, round, in shell, edible portion, av.        | 12 to 16        | 210  | 7.4  | 56           | 8   | 34                |
| Lobsters, whole, edible portion, average           | Two servings    | 117  | 4.1  | 78           | 20  | 2                 |
| Oysters, in shell, edible portion, average         | One dozen       | 193  | 6.8  | 49           | 22  | 29                |
| Eggs, hen's, boiled . . . . .                      | One large egg   | 59   | 2.1  | 32           | 68  | 00                |
| Consomme, as purchased . . . . .                   |                 | 830  | 29.  | 85           | 00  | 15                |
| <b>VEGETABLES</b>                                  |                 |      |      |              |     |                   |
| Asparagus, as purchased, av. cooked . . . . .      |                 | 206  | 7.19 | 18           | 63  | 19                |
| Beans, baked, canned . . . . .                     | Small side dish | 75   | 2.66 | 21           | 18  | 61                |
| Carrots, cooked . . . . .                          | Two servings    | 164  | 5.81 | 10           | 34  | 56                |
| Corn, sweet, cooked . . . . .                      | One side dish   | 99   | 3.5  | 13           | 10  | 77                |
| Lentils, cooked . . . . .                          |                 | 89   | 3.15 | 27           | 1   | 72                |
| Onions, fresh, edible portion, average . . . . .   |                 | 200  | 7.1  | 13           | 5   | 82                |
| Peas, green, cooked . . . . .                      | One serving     | 85   | 3.   | 23           | 27  | 50                |
| Potatoes, baked . . . . .                          | One good-sized  | 86   | 3.05 | 11           | 1   | 88                |
| Potatoes, mashed (creamed) . . . . .               | One serving     | 89   | 3.14 | 10           | 25  | 65                |
| Spinach, cooked, as purchased . . . . .            | 2 servings      | 174  | 6.1  | 15           | 66  | 19                |
| <b>FRUITS AND SWEETS</b>                           |                 |      |      |              |     |                   |
| Dates, edible portion, average (dried) . . . . .   | Three large     | 28   | .99  | 2            | 7   | 91                |
| Figs, edible portion, average (dried) . . . . .    | One large       | 31   | 1.1  | 5            | 0   | 95                |
| Prunes, edible portion, average (dried) . . . . .  | Three large     | 32   | 1.14 | 3            | 0   | 97                |
| Raisins, edible portion, average (dried) . . . . . |                 | 28   | 1.   | 3            | 9   | 88                |

\* Part of table compiled by Professor Irving Fisher: here reproduced by courtesy of The Journal of the Am. Medical Assn.

| NAME OF FOOD *                                  | "Standard Portion" Contain-<br>ing 100 Calories Roughly<br>Described | Wgt. of 100<br>Calories |      | Calories in each<br>"portion" |      |                        |
|-------------------------------------------------|----------------------------------------------------------------------|-------------------------|------|-------------------------------|------|------------------------|
|                                                 |                                                                      | Grs.                    | Oz.  | Pro-<br>teid                  | Fat  | Carbo-<br>hy-<br>drate |
| FRUITS AND SWEETS, CONT'D.                      |                                                                      |                         |      |                               |      |                        |
| Apples, baked . . . . .                         | .....                                                                | 94                      | 3.3  | 2                             | 5    | 93                     |
| Bananas, yellow, edible portion, average        | One large                                                            | 100                     | 3.5  | 5                             | 5    | 90                     |
| Olives, ripe . . . . .                          | About 7 olives                                                       | 97                      | 1.31 | 2                             | 91   | 7                      |
| Watermelon, as purchased, average . . . . .     | .....                                                                | 760                     | 27   | 6                             | 6    | 88                     |
| Honey, as purchased . . . . .                   | 4 teaspoonfuls                                                       | 90                      | 1.05 | 1                             | 0    | 99                     |
| Sugar, granulated . . . . .                     | 3 teaspoonfuls or 1½ lumps                                           | 24                      | .86  | 0                             | 0    | 100                    |
| Syrup, maple . . . . .                          | 4 teaspoonfuls                                                       | 35                      | 1.2  | 0                             | 0    | 100                    |
| NUTS                                            |                                                                      |                         |      |                               |      |                        |
| Almonds, edible portion, average . . . . .      | About 8                                                              | 15                      | .58  | 13                            | 77   | 10                     |
| Peanuts, edible portion, average . . . . .      | 13 double                                                            | 18                      | .62  | 20                            | 63   | 17                     |
| Pecans, polished, edible portion . . . . .      | About 8                                                              | 13                      | .46  | 6                             | 87   | 7                      |
| Pine nuts (pignolias), edible portion . . . . . | About 80                                                             | 16                      | .56  | 22                            | 74   | 4                      |
| CEREALS                                         |                                                                      |                         |      |                               |      |                        |
| Bread, brown, as purchased, average . . . . .   | Ordinary thick slice                                                 | 43                      | 1.5  | 9                             | 7    | 84                     |
| Bread, white, home-made, as purchased           | Ditto                                                                | 38                      | 1.3  | 13                            | 6    | 81                     |
| Crackers, oatmeal, as purchased . . . . .       | Two crackers                                                         | 23                      | .81  | 11                            | 24   | 65                     |
| Oatmeal, average, boiled . . . . .              | 1½ serving                                                           | 159                     | 5.6  | 18                            | 7    | 75                     |
| Rice, boiled, average . . . . .                 | Ordinary cereal dish                                                 | 87                      | 3.1  | 10                            | 1    | 89                     |
| DAIRY PRODUCTS                                  |                                                                      |                         |      |                               |      |                        |
| Butter, as purchased . . . . .                  | Ordinary pat or ball                                                 | 12.5                    | .44  | .5                            | 99.5 | 00                     |
| Buttermilk, as purchased . . . . .              | 1½ glass                                                             | 275                     | 9.7  | 34                            | 12   | 54                     |
| Cream . . . . .                                 | ½ ordinary glass                                                     | 49                      | 1.7  | 5                             | 86   | 9                      |
| PASTRIES                                        |                                                                      |                         |      |                               |      |                        |
| Cake chocolate layer as purchased               | 1 ordinary square piece                                              | 23                      | .98  | 7                             | 22   | 71                     |

one meal is to be considerably heavier than either of the other two, furnishing (say) 1,000 calories. If, now, in the schedule just referred to, you run your eye up and down the column of weights, you will find that the weights required to furnish 1,000 calories may widely vary with different foods; ranging from a few ounces to many pounds. In order to get 1,000 calories out of *bouillon*, for instance, a man would have to compass no less than nineteen pounds of that liquid; of water-melon, nearly as much. Even of tomatoes, the necessary weight would be more than ten pounds; and asparagus, spinach, onions, and many other vegetables, though less extreme than the examples just cited, would be quite too bulky for the principal sources of energy in a "square meal." The meal must be so compounded that the appetite can find its 1,000 calories within the limits of sixteen to thirty ounces. A comparison of weights all through the schedule (to which the reader is invited to refer throughout the discussion) will show that — excepting fats — nuts are the most concentrated food, followed by meats; that vegetables are the bulkiest, followed by fruits; that cereals, dairy products and sweets are about even with meats; but that fats are always concentrated, whether found in meat, nuts, or fruit.

We may expect, therefore, of our three types of

meals (assuming that the proportion among the three elements is to be the same in all types) that, for a given number of calories, the bread-and-butter and vegetable type will be the bulkiest; the bread-and-butter, vegetable and meat type somewhat less bulky (the meat replacing, in a more concentrated form, a part of the vegetable); and the fruit and nut type will be most concentrated of all.

Next, consider the distribution of the three elements. Notice that, opposite the animal foods, there is, in the carbohydrate column, a remarkable succession of zeros. For, with a few exceptions, such as oysters, clams, lobsters and calves'-foot jelly (an artificial compound), flesh is entirely devoid of the carbohydrate element. Of the protein element, on the other hand, it usually contains more than any other food contains, its protein running from fourteen to ninety per cent. of the entire calorific value.

Skiping now to the fruits, notice that somewhat the opposite condition obtains. Although the protein element is not often entirely absent from fruits, it is always very meagre; whereas, the carbohydrate element is even more abundant than we found the protein element to be in flesh, ranging from seventy-five to one hundred per cent. and usually exceeding eighty per cent. of the entire food value of the fruit.

Nuts are more like flesh, though not quite so rich in protein, and not entirely wanting in carbohydrate. They are also rich in fat.

Vegetables and cereals are more evenly balanced than any of the others.

We are now ready to put one food with another, and to note their balance. According to Professor Chittenden's standard, treated calorie-wise instead of gramme-wise, about ten per cent. of the combination should consist in protein. In the proportions of fat and carbohydrate, however, the permissible variation, as already intimated, is very wide. Tropical dwellers as opposed to Esquimaux are examples of the predominant use of sugar-fuel as opposed to fat-fuel. But, for the sake of having a model, we may suppose that an average sedentary worker would use about half as much fat-fuel as sugar-fuel. Thus, in the characteristic meal of such a man, the three elements would range themselves about as follows:

|              |            |                  |
|--------------|------------|------------------|
| <i>Prot.</i> | <i>Fat</i> | <i>Carbohyd.</i> |
| 10           | 30         | 60               |

The mashed creamed potatoes above mentioned come very near to this balance. Thus:

|              |            |                  |
|--------------|------------|------------------|
| <i>Prot.</i> | <i>Fat</i> | <i>Carbohyd.</i> |
| 10           | 25         | 65               |

You shall scan the schedule in vain, I think, for another article coming so near to the adopted model.

Usually, therefore, you will find the solution of balance, as worked out by an unfettered appetite, to be the supplementation of one food with another. But there is advantage in having well-balanced combinations already on the table; because errors of appetite in the balance of other foods (assuming there are to be such errors) will have less effect on the entire balance of the meal. How this supplementation was already accomplished for the appetite in the case of the creamed potatoes, may be guessed if we take a baked potato from the list, and cream it. Without the cream, the baked potato is seen to be deficient in fat. But with cream, the combination is brought very near to the model. Thus:

|                                                                            | CALORIES                         |            |                                  |
|----------------------------------------------------------------------------|----------------------------------|------------|----------------------------------|
|                                                                            | <i>Prot.</i>                     | <i>Fat</i> | <i>Carbo-<br/>hyd.</i>           |
| One good-sized baked potato ( <i>i.e.</i> , 1 portion) . . .               | 11                               | 1          | 88                               |
| $\frac{1}{2}$ glass cream ( <i>i.e.</i> , $\frac{1}{2}$ portion) . . . . . | <u>2<math>\frac{1}{2}</math></u> | <u>43</u>  | <u>4<math>\frac{1}{2}</math></u> |
| Total . . . . .                                                            | 13 $\frac{1}{2}$                 | 44         | 92 $\frac{1}{2}$                 |
| Or (in percentage) . . . . .                                               | 9%                               | 29%        | 62%                              |

This is an ultra-simple combination. Others of equal simplicity, combined on the same principle, are: Cereal and cream; cereal, cream, and sugar; or, again, the several kinds of sandwich: as plain bread and butter: bread, butter, and jam; and bread, butter, and meat. A meat sandwich is sometimes spoken of as the ideal combination;

he meat furnishing protein; the butter, fat; and the bread, carbohydrate. But, under the Chittenden standard, it will be found that most kinds of meat will raise the protein element too high. Yet, all these bread combinations are excellent; and were a man's lunch-basket to contain all, his appetite would have no difficulty in arriving at a fair balance among the three elements. Of course, the balance may well vary from day to day, one day's balance offsetting another, so as to keep the average wherever the individual needs it.

Let us now construct several meals of a wider variety. Let us construct one of each of the three leading types — each to furnish 1,000 calories. First, were an educated palate to be confronted by a characteristic meat-and-vegetable meal, it could manage an excellent combination by appropriating 200 calories from each of the following five articles:

|                                         | <i>Prot.</i>   | <i>Fat</i> | <i>Carbo-<br/>hyd.</i> |
|-----------------------------------------|----------------|------------|------------------------|
| Bread (two slices) . . . . .            | 26             | 12         | 162                    |
| Butter (two pats) . . . . .             | 1              | 199        | 0                      |
| Two small lamb chops . . . . .          | 48             | 152        | 0                      |
| Two good-sized baked potatoes . . . . . | 22             | 2          | 176                    |
| Two side dishes of sweet corn . . . . . | 26             | 20         | 154                    |
|                                         | <hr/> 123      | <hr/> 385  | <hr/> 492              |
| This makes a total of . . . . .         | 1,000 calories |            |                        |
| Of which the protein is . . . . .       | 12 per cent. + |            |                        |
| And the weight . . . . .                | 18½ ounces     |            |                        |

Notice that the percentage of protein may be markedly varied according to the kind and amount

of flesh-food included. For instance, the lean beef mentioned in the schedule, if substituted for the chops, would bring the percentage up to 25½ instead of 12 +.

So much for the first type of meal — the bread-butter-meat-vegetable type.

The second type of meal — the bread-butter-vegetable type — can be managed with equal success. Nearly all garden vegetables contain ten per cent. or more of protein, so that this element, under the Chittenden standard, need occasion no difficulty; but, because of the greater average of bulk which prevails among vegetables — especially such as spinach, onions, etc. — the objection is sometimes raised that a vegetable meal must necessarily be too heavy. This is not true. Excessive weight may always be avoided if, among the vegetables in a vegetable meal, some of the following be always in the central position:

Corn  
Lentils  
Potatoes  
Beans  
Peas

Indeed, the meat-and-vegetable meal above analyzed may be converted directly into a vegetable meal, of almost identical values and only four ounces heavier, by the substitution of green peas



(two servings) in place of the two chops. The result will be:

|                                                 | <i>Prot.</i> | <i>Fat</i> | <i>Carbo-<br/>hyd.</i> |
|-------------------------------------------------|--------------|------------|------------------------|
| Vegetable meal . . . . .                        | 121          | 287        | 592                    |
| Compared with meat and vegetable meal . . . . . | 123          | 385        | 492                    |
| Total calories of vegetable meal . . . . .      | 1,000        |            |                        |
| Protein . . . . .                               | 12 per cent. |            |                        |
| Weight . . . . .                                | 22½ ounces   |            |                        |

Since the one type of meal merges so easily into the other, and since the characteristic effect of improved mastication is a tendency toward less protein, and that more often of the vegetable type, it is clearly the business of the purveyor, in both forms of meal, to have high-protein and low-protein vegetables on hand in sufficient variety.

The question of desserts calls for attention. A single piece of apple pie of the usual size would increase the 1,000-calorie meal by 300 calories; a single doughnut, by 200; a baked apple by only 100. Clearly, therefore, the apple is the most excellent of the three. The others are too concentrated; and concentration, together with sweetness and softness, is the great vice of pastries; for this conspiracy of properties makes it insidiously easy to "top off" one square meal of meat and vegetable with another square meal of pastry. The best desserts, then, and likewise the best accessories during the meal, are berries and fruits,

cooked or otherwise, or fruit juices, fruit sauce, marmalade, etc.; because not only are these comparatively light, but, furthermore, they serve to break up the carbohydrate column with an ingredient of sugar. Starch already too much predominates in the average meal, and is only further augmented by the use of pastries. The best use for a pastry, if it is to be used at all, is not as an accessory to a heavy meal, but as the *pièce de résistance* in a light lunch. For this purpose, if well cooked and not hastily gulped down with the aid of a liquid, a pastry may upon occasion prove really excellent. It combines so many elements that the balance is sometimes nearly right to start with. (Examine the schedule.) We shall presently notice the use of pastry as an adjunct to the fruit-and-nut meal.

The fruit-and-nut type, as we already know, will prove more concentrated than either of the others — especially so, if free use is made of dried sugary fruits, such as figs, dates, and raisins. Figs, dates, and raisins are not indispensable; but at least the opposite extreme — intensely acid fruits — will quickly prove self-limiting. They serve best as accessories. Bananas make an excellent ingredient in a fruit-and-nut meal; because their carbohydrate is partly in the form of starch; that is to say, they play the part of bread. However, of

anas it should be observed that, until the  
 1 has begun to turn black, they are not ripe)  
 ihr ingestion, moreover, is made safer by scrap-  
 off the fur from the meat, and of course by  
 rough mastication also, wherein they have  
 erto been much neglected and consequently  
 ligned. Olives should also appear upon every  
 le where fruits and nuts are, for olives are per-  
 s the only fruit that is rich in fat. So that,  
 adjusting the balance between the other two  
 nents, olives fill an office comparable with that  
 butter. The taste for olives, when they are  
 en, is said to be acquired; but ripe olives, accord-  
 to the author's experience, appeal to the palate  
 her naturally.

Following is one of the admirable combinations  
 ich a trained appetite might be expected to  
 her up from an assortment of fruits and  
 s:

|                                                  | <i>Prot.</i> | <i>Fat</i> | <i>Carbo-<br/>hyd.</i> |
|--------------------------------------------------|--------------|------------|------------------------|
| anas . . . . .                                   | 10           | 10         | 180                    |
| ge figs . . . . .                                | 10           | 0          | 190                    |
| ge dates . . . . .                               | 4            | 14         | 182                    |
| uble peanuts . . . . .                           | 40           | 126        | 84                     |
| ine nuts (these are exceedingly small) . . . . . | 44           | 48         | 8                      |
| ves . . . . .                                    | 2            | 91         | 7                      |
|                                                  | <hr/> 110    | <hr/> 289  | <hr/> 601              |
| Total calories . . . . .                         | 1,000        |            |                        |

so far as balance is concerned, this is  
 most mathematically conformable with our

model, as will be seen if we arrange the figures by percentage:

|                              | <i>Prot.</i> | <i>Fat</i> | <i>Carb-<br/>hyd.</i> |
|------------------------------|--------------|------------|-----------------------|
| Fruit-and-nut meal . . . . . | 11%          | 29%        | 60%                   |
| Model . . . . .              | 10           | 30         | 60                    |

The weight is 16½ ounces

A disciplined appetite, then, may gather a well-balanced meal from any one of the three great types. Nor need any single meal be without reasonable variety. Of each element more than one form may be provided; for instance, more than one form of bread, more than one form of vegetable, etc. And, from day to day, the variety may be further enlarged without going outside of the type.

The first two types — bread-butter-meat-vegetable, and bread-butter-vegetable — merge easily into each other. It is when the third is mingled with these on the same table, that confusion arises. To get more than an accessory use of fruits, therefore, and to get any use at all of nuts (for nuts, like pastries, are too concentrated to make good accessories) we must find our way to the fruit-and-nut meal, or at least to some variant thereof. Here we come in conflict with established custom. To most Yankees, fruits and nuts, as a substantial part of the daily fare, seem absurdly exotic. Hence, we — who are the children

Yankee parents — have never had the chance to find out where our appetites would have drawn us in a really free country. Our present appetites have been imposed upon us, along with our racial prejudices. Whether our own children will vary from this arbitrary behaviour is only conjectural; but at least we need not fear to give them the chance.

The difficulty in opening the way to a more liberal use of fruits and nuts, is to avoid an abrupt rupture from acquired habits. To introduce a gradual departure, the first step has been already described: the substitution of fruits for pastries and accessories of a substantial meal. The next will be to assign to fruits and nuts, occasionally, a dominant position in a light meal.

This implies, of course, the existence of a light meal. If such a meal does not exist, to create it by fiat will be absurd and entirely counter to the principles of freedom already laid down. However, by the very practice of those principles, a light meal is pretty sure to make its appearance, sooner or later, somewhere among the things — gradually, and not by fiat. The usual result of improved mastication, has thus been, first, a reduction in protein; second, the more or less frequent substitution of vegetable protein for flesh protein; third, the incorporation

among the day's meals, of one or two that are light.

The only arbitrary move thus far advised, therefore, is the substitution of fruit accessories for pastries; and even in this, the arbitrary feature is only the banishment of pastries, not the acceptance of fruit. The acceptance of fruit shall still be the prerogative of your palate; and of course your palate must be allowed to rule out the fruits also, if you possess a palate so singular.

The favourable reception of fruit being thus, by your palate, already established, and one light meal (or more) established by the same agency, what character shall you give to that light meal in order that fruit and nuts may properly assume in it a dominant position?

Well, already cereals are an element in the popular breakfast — usually the lightest meal of the day. Therefore, at that meal, cereal, fruit, and nuts would fall very naturally into combination, instead of cereal and eggs with a mere snack of grapefruit, as heretofore. All that is needful is the presence, along with the cereal, of abundant fruit and nuts. Appetite will do the rest — if it wants to; and if it does not, the cereal and cream will still be adequate.

Other light meals at which fruits, or nuts, or both would be entirely congruous are: Vegetable-

salad meals, with nuts and with fruit accessories, such as raisins or a fruit beverage.

And fruit-salad meals with nuts.

With both of these salad meals there should be present some such accessory as cake or crackers — preferably the latter for good chewing. Ripe olives, also, should make one in the variety; so that if the use of cereal and cream tends to recede into the background, there will still be an abundant source of fat.

If you would really become an adept in the character of foods, nothing will avail but a deliberate study of the food schedule. Make for yourself a number of blank menu cards, ruled in three columns, just as the schedule is (the weight columns being omitted, however, for simplicity), and upon these cards try your hand at devising a number of ultra-simple combinations, and then a number of 1,000-calorie combinations within the three types — calculating the weight of each.

## VII

### DIET

#### CIRCUMSTANCES

**T**HUS, though the appetite must be the final arbiter, its hunt for the right elements in right proportions, may be simplified by the purveyor.

But after the combination of simplicity and variety is established, there will still remain some very subtle conditions which hamstring the efficiency of the appetite. Already these have been barely mentioned. They may be classed under two heads: first, those besieging influences of daily routine or of business which put one in a wrong physiological condition for dining, or wrong mood of hurry or worry; second, those meddlings of the chef with the very texture of foods, which make them deceptive to the palate or deceptive to the teeth.

#### *Schedules*

First, the besieging influences: An appetite cannot discriminate if it be not hungry. Unless,



when you eat, pleasure is ripe for satisfaction, vagueness will take possession and go on a hunt for pleasure through novelty. The first and most radical move toward making your appetite know its own mind is one that I dare not altogether recommend; for in the average household it is seldom feasible. The philosophy of it, however, I commend most urgently. The scheme is to abandon regular hours for meals altogether; or, as an approximation to such a scheme, to fix an hour for only one meal in the day (say the first) and go foraging for the others according as hunger drives. The philosophy of this procedure is this: if, at some meal, you go beyond your proper ration, it will not be difficult to refrain from *seeking* food afterward until you have honest need of it; whereas, if, because the arbitrary clock has struck, the food be placed arbitrarily under your nose, you will be likely to consume at least your usual amount, thus starting the vicious circle of a permanent glut. According to this philosophy, not to begin a meal until you are hungry is more important than to end it before you are oversated. Nor would the apparently irregular régime of postponing the beginning of a meal beyond the set hour, necessarily interfere with the daily rhythm. It might reduce the number of meals from three to two, and introduce accelerations

and retards in the daily rhythm, as in music; but the rhythm would not be destroyed; the demands of the body would maintain it.

Such is the advantage of the scheme. Its impractical feature is that, when at last hunger does solicit, you may turn a deaf ear, being for the moment in the grip of other affairs.

However, the least you can do to prevent the overlapping of provisions in your body, is to claim the privilege of eating, now and again, more lightly than usual, and even, occasionally, of omitting a customary meal altogether — taking, perhaps, for the sake of the daily rhythm, a bit of cracker and a drink of buttermilk. To win this privilege, of course, you will have to come to a new understanding with the ruler of the larder; but this difficult negotiation must not be shirked. The purveyor must be brought to understand that meals are made for men, not men for meals, and devise ways and means of disposing of what is rejected. Here is a problem whose challenge must be accepted in a studious spirit.

This embarrassment of internal riches is obviated for those who take only two meals a day. These people may still be early risers; but their first meal is later, and their second earlier, than the customary breakfast and night-dinner respect-

ely. However, the arbitrary adoption of a novel scheme of meals, such as the no-breakfast home or the no-supper scheme or the two-meal three-meal or four-meal scheme, is inadvisable. The only object of a new scheme is to avoid the upsetting of the system; and this object will be accomplished sometimes in one way and sometimes in another. The schedule of meals should be determined by the average performance of the reformed appetite as that shall accommodate itself to the schedule of business.

For the heaviest meal, many people believe that the middle of the day is the most appropriate time. For business men, however, such a schedule is difficult of management unless they are willing to take life in a more leisurely fashion and enjoy a wholesome bit of noon leisure. "They do these things better in France" — in some respects. The objection to putting the heavy meal late in the day is that, in that position, it will tend to interfere with good sleep; it will tend to make you sleep like a log instead of sleeping like a healthy child. Therefore, if you must have your heavy meal at night, have it as early as possible — more nearly six than nine. But this determination will necessitate earlier breakfasts and earlier noon meals, since otherwise one meal will not be out of the way before your stomach is called upon

to digest another, and (what is worse) your general system called upon to admit the digested product.

*Moods, etc.*

But a glut in the system left over from the last meal is not the only agent in desensitizing the appetite at the beginning of the next. Exhaustion and worry have the same effect. To come to the table after exercise is excellent; but not after exhaustion, either physical or nervous; and both these conditions are common — especially the nervous. Brace yourself, if need be, by lying down for five minutes before eating. The heart beats substantially lower when the body is recumbent; and five minutes' repose is better in the long run than a stimulant. Stimulants are now so easy of access that this stratagem of snatching brief repose from the very midst of affairs is become a lost art among us. Yet it is as reasonable and as necessary as springtime and the revolutions of the stars. If you *cannot* approach your meal fairly rested and fairly cheerful, abbreviate it, or altogether omit it. An exhausted or worried or angry stomach will but inadequately digest your food, if at all, and the more food there is the more damage it will do. *During* the meal treat it as a regular occasion for relaxation and composure. After the meal also, and whether

tired or not, you should loaf and chat for a while — but longer if you are tired. The process of digestion is only begun. For a time longer, your stomach is going to need the services of the bulk of your blood; and you have no right, immediately after setting that organ at work, to summon away from it its working force. You must rest.

### *Textures*

Lastly, there remain those subtle perversions in the texture of many of our modern foods; blandishments of the chef, which deceive the appetite and destroy the teeth. To inveigh against particular articles were perhaps needless, since a perfectly regenerate appetite, like Mr. Fletcher's, ought to be trusted to give the slip to all temptations, automatically. Nevertheless, sugar, for instance, which once we had to win for ourselves out of the heart of our foods by dint of honest chewing, is now altogether too easy of access. Standing alone before us, its pleasures are direct and poignant. I, for one, will sometimes go on morbidly eating confection after confection, when the taste of it has actually become unpleasant. Nor is this an inexplicable piece of wilfulness on my part. I believe that physiology and psychology both have one explanation to offer: and that is memory. Even as a violent image will persist

upon the retina of the eye, so the memory of the initial acute pleasure of the first confection is sometimes stronger than the dull sense of present satiety! And in the name of that memory we go on eating. By no means would I propose the arbitrary abandonment of sugar. But what I do urge is that the benefit of every doubt should go against it. Mastication will help in this modification; and the garnishment of your cereal occasionally with a sliced banana or some sweet apple-sauce, instead of unmitigated sugar — and for that matter, the more general use of fruit for its own sake — these will moderate the temptation.

Salt is another artificially concentrated essence; and salt is as necessary as sugar. Indeed, few people know how necessary salt is. It is so necessary that table salt alone is quite inadequate. Table salt is only one kind. We need a dozen. We need this dozen to help us in sundry assimilative operations, and also to build nerve and bone, after the manner of protein. It so happens, however, that Nature did not forget to supply this dozen — one and another — in nearly every food that either lives or grows. That is one reason why variety in our starches, proteins, etc., is important — to insure variety in the accompanying salts. But clear table salt is grossly overeaten. The

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bulk of it is merely eliminated, to the progressive detriment of the kidneys.

And, of course, there are those still more excruciating condiments — mustard, pepper, etc. These are merely ridiculous. They ply their vicious trade in rousing a jaded mucous membrane — only to jade it the more with every additional sting.

But the worst of all our meddlings in the texture of foods consists in their unnatural softening. Too often they lend themselves to ingestion by mere suction — are drawn down on the pneumatic principle, like a message in one of those ingenious tubes which connect the cashier's desk with the saleslady's counter. How often have I watched, in awed silence, the passage of a cushion of mashed potatoes down a human gullet!

And the lack of insalivation is not the worst of the ill consequences that attend the use of soft foods. That Nature's way is always the best; that one transgression is the seat of many punishments; that the body is wonderfully and fearfully unified in its making — all these mighty principles find most signal illustration in the consequences of neglected chewing, due to the absence of anything fit to chew. For, as the development of one muscle promotes the development of adjacent muscles, so the development of one bone promotes

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the development of adjacent bones. If we would have good skulls, we must condescend to have good jaws; if we would have good jaws, we must have good teeth; if we would have good teeth, we must give them Spartan exercise. Dr. E. A. Bogue, one of the pioneers in that new departure of dentistry — “orthodontia” — examined many skulls of primitive men. Among these, he found that dental deformities were comparatively rare; but that when they did occur they were almost always accompanied by other deformities in the skull. Lest some one imagine that, in this case, effect has been confused with cause, Dr. Lawrence Baker recently tried an experiment on rabbits. The teeth of two, in a litter of several, he filed on one side of the mouth only, so as to prevent the jaws on that side from coming together. After seven months, it was found that, as compared with the other units in the same litter, these two were unsymmetrical — inferior on the mutilated side, and that, not only as to their skulls, but to some degree as to several of their ribs also. And in each case there was a slight spinal curvature.

Why do primitive men and peasants have better and more regular teeth than we? Of course, we may console ourselves with our superior brains, and argue that inferior teeth are necessary to superior brains, just as we might argue that

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tuberculosis is necessary to civilization. But I fear, if we adopt that dishonest course of chop-logic, we shall stub our noses against a mocking paradox. It is not for nothing that, even among the civilized, we have learned to deplore the receding chin as a mark of weak character; and to hail the square-jawed man of destiny! For, when we come to that ultimate product of civilization, in this bottle-nourished, pap-fed age — namely, the child with irregular teeth, crowded into a tenuous jaw — do we not find the orthodontist at work, doing for human beings the converse of what Dr. Baker did for rabbits; by means of wires and clamps, spreading the human teeth back to rabbit efficiency and rabbit alignment? Whereupon, we further observe the human and civilized jaw spreading to fit the teeth; the whole skull expanding to fit the jaw; the alignment of the eyes improving so as to forestall the precocious use of spectacles; the nose straightening; the breathing arches amplifying so that vocal resonance is improved; the lungs filling; the shoulders straightening; and meanwhile, in the more spacious skull, intelligence brightening. Of course, here is another chance for the confusion of effect with cause; for all these phenomena occur at the very time when children might well be expected to grow, even without the assistance of metal

bands. But, somehow, the application of the bands and the acceleration of a growth that seemed arrested, come into noticeable coincidence.

Having achieved, or promoted, all this betterment (and received his money for it), the orthodontist next turns upon the gratified parent and says: "Had your child been brought up to chew harder, Nature would have done for it what I have done — only done it better. And when Nature does it as only Nature can, the teeth are made so round and smooth that the native saliva, *generated by the same chewing that develops the teeth*, goes far to keep the latter clean, even without the use of the tooth-brush."

Surely, the tooth-brush is the most singular institution which differentiates men from other creatures: yea, and the most laughable, too, when we consider how the teeth of other creatures are, for the most part, above reproach, while our own are a source of perennial pathos. Little do we realize the state we are come to. Dr. W. R. Woodbury has proposed a crusade against "The People's Disease" — bad teeth; and Dr. Osler says that the tooth question is more urgent than the liquor question. For that matter, are not bad teeth themselves one of the causes of intemperance, through their causation of indigestion?

But, indeed, there is no end to it, once we begin

the tracing of consequences. Suffice it here to propound and adopt, once for all, this central principle: *that those activities which first evolved the human species became thenceforward forevermore indispensable to its continuance.*

Meanwhile, let us learn to chew; and, learning to chew, let us learn to enjoy hard foods: crackers; brittle rolls; cereals that are not submerged in cream, but heaped alongside of it for combination after both are got into the dental mill.

From all that has been said in our four chapters on diet, the following suggestions are gathered:

Eject dogmatically from the larder whatever is of known rottenness;

Impose dogmatically on the table the special antidote of the special disease of our day; that is, use a milk-ferment as an antidote to autointoxication;

Have every meal provided with the means of a model balance before it is set before you;

Allow but a modest variety in any one meal;

Insure the utmost variety in the aggregate of meals;

Other things being equal, give the preference to hard foods;

Lay plans for physical rest and mental composure, during and immediately after, and sometimes immediately before, the meal;

In these ways relieved, or partly relieved, some of the more serious handicaps which in civilization, give your appetite the benefit Mr. Fletcher's discipline; that is:

Do not mistake various kinds of restlessness physical or mental — in the stomach or in mind — for hunger;

Taste with the fastidiousness of an epicure not the dull greed of a glutton; and chew in order to taste;

Without necessarily abandoning regularity, not eat till hunger speaks; while eating, do not choose but as hunger chooses; finally, do not continue eating after hunger has become anything less than positive and eager.

Finally, from an independent source, comes a singular bit of corroboration; one of those reversals which statistics sometimes throw into the midst of stale assumption. Bear in mind that very typical, though not in all cases a necessary consequence of these reforms in diet is a reduction in weight. Now, therefore, come the actuaries with the news that among mature folk it is not the overweights, as once stoutly maintained, nor even the average weights, but the underweights — the slightly under the average — that make the most acceptable risks.

## VIII

### "NERVINES"

(A PARENTHESIS)

*"Our speculations can scarce ever be too fine, provided they be just."*

—DAVID HUME.

THE discussion of tea, coffee, alcohol, and tobacco I had hoped to escape. Too long, already, have these substances held the meek human race by the ears; and perhaps their worst feature is the remarkable range of their effects; inducing intemperance, not in the takers alone, but in the talkers as well; and the madness assuming perhaps the more obtrusive form — surely the less amiable one — in the talkers. Humiliating as it might be to be proved a drunkard, it were at least exceeding uncomfortable to stand confessed a lecturer on the liquor problem. The truth is that hitherto the debaters in this field have been actuated by mere vindication on the one side, or the saving of stubborn souls on the other; and neither of these programmes is

conducive to a scrupulous regard for the simple truth.

However, the very recklessness of partisan debate, having had its usual effect of entrenching the partisans more securely than ever in their respective prepossessions, has at last called forth as to one of these substances an exhaustive physiological report; a report, by the way, which presents the subject so impartially, so voluminously, and, moreover, so scientifically, that few people, except scientists themselves, who surely do not need its instructions, are able to steer their minds through it—much less gather from it any practical convictions. This is the report on “Physiological Aspects of the Liquor Problem,” made to a Committee of Fifty by a subcommittee composed of Professor W. O. Atwater, Dr. John S. Billings, Dr. H. P. Bowditch, Professor R. H. Chittenden, and Dr. W. H. Welch. Doubtless this is the best work of its kind that has ever been done; and when similar reports shall have been made on the other three bones of contention, the issues in the debate will be much narrowed. Meanwhile, perhaps, an effort to interpret to the reader the best available scientific conclusions, including those set forth in this report, will not be unwelcome. My plan is to state what I understand to be demonstrated about these four sub-

nces; to keep visible the line which separates demonstrated from the merely suspected; and then to give my own reasons for excluding these four from the high society of those things whose eligibility is above suspicion.

Let it be borne in mind that it is only with the cumulative effects of small abuses that this book begins to concern itself at all. But in examining these four "nervines," for cumulative effects, particular scruple should be exercised; because transgressions in their use are measured in apothecary milligrams, whereas other transgressions are measured in grocery pounds. That the ill effects of microscopic abuses in respect of "nervines" are greater in degree and more numerous in kind than the ill effects of pound abuses in respect of other substances, is beyond dispute. The dispute, therefore, must narrow itself to three questions: first, is there *any* really available quantity so small that within that quantity a given one of these substances can elude the law of cumulative effects? second, if this question is not susceptible of absolute solution, on which side rests the burden of proof? and third, while the question remains in doubt, are there any positive advantages in their use which make it unwise to abandon them? The last question shall be considered first — the alleged advantages in their use.

To prepare the way for this question, it is necessary, at the outset, to understand the general physiological bearing of the four; that is, their relation to the fundamental process of life; the process of preparation that goes on in the alimentary canal, and the process of combustion that goes on in the cell-furnaces. I venture the assertion that in the case of each substance the physiologic action is the direct opposite of what is popularly supposed. Alcohol has so long been condemned (and praised) for its exhilarating effects that doubtless few of that large class of people who have given the subject but slight attention have supposed that it performs in the cells of the body one of the prime utilitarian offices of alimentation: it burns and gives off energy, and this, neither more nor less economically than food. On the other hand, few who have enjoyed the grateful sensations which follow the use of tea and coffee, have doubted for a moment that these were nutritious; whereas, in fact, the only office which physiologists assign to them is aromatic — the whetting of the appetite in order to facilitate the ingestion of *other* substances. Of calorific value they have, practically, not a jot. They can furnish neither tissue nor energy. And yet, tea and coffee are sometimes praised for performing a perfectly legitimate, if entirely accessory,



rice; and alcohol condemned despite its fuel value. For if tea and coffee are anomalous in not furnishing heat, alcohol is equally anomalous on many other counts. In the first place, in the mere matter of chemical classification, it is neither carbohydrate, fat, nor protein. In the second place, it runs the gauntlet of the alimentary canal with perfect impunity, not suffering any process of digestion. In the third place, though it can furnish current energy, it can neither build fibre (as protein does) nor take storage in the body in the form of adipose tissue (as all real foods do). In the fourth place, while any food that is sufficiently condensed, can alone furnish a large proportion of a day's fuel, alcohol ceases to be appropriable after about  $2\frac{1}{2}$  ounces have been administered *in small doses* — a quantity which furnishes only about  $\frac{1}{5}$  of the daily requirements of an average sedentary man. After the ingestion of that amount —  $2\frac{1}{2}$  ounces — alcohol begins to be eliminated without performing any intermediate office; and before the ingestion of that amount, it begins to exercise acknowledged adverse influences. Indeed, that very amount, taken pure, may be a dangerously toxic dose.

These are the fundamental alimentary properties. We may now consider the opinions of

those who believe that they find some advantage or advantages to the bodily economy in the nervines. Notice that we are speaking now from a merely utilitarian point of view. The non-utilitarian argument we have tabled until the end of the chapter.

The utilitarian advantages, then, sometimes ascribed to these nervines, are as follows:

That they stimulate the life process;

That they are aids to digestion;

That they relieve fatigue;

That they enable one to do more work on equal or even less food.

There is one other advantage which used to be ascribed to them. It used to be said that they protect the protein of the body from so rapid destruction as it would suffer without them. But this view is no longer held.

Let us consider the other alleged advantages, therefore; and consider them in connection with each drug separately.

First, stimulation, in connection with alcohol. It is now established that, except for a very short time, alcohol is not a stimulant, and that neither its temporary stimulating effect nor its permanent narcotic effect impinges directly upon the circulation or the respiration, but *only* upon the nerves. Alcohol will even serve for a clumsy kind of

æsthetic. How, then, explain the temporary acceleration of the pulse and of respiration which results from its ingestion? In two ways: First, the nervous action of the subject is accentuated, the skeletal muscles being in many little unnoticeable ways rendered more active, and hence a greater demand put upon his system; second, the nerves controlling the blood-vessels at the surface of his body suffer paralysis and are relaxed, causing not only a flushed appearance, but an increased radiation of heat, so that more heat must be supplied by his cell-furnaces and hence the life process must go on more rapidly, the blood moving more swiftly and the lungs working harder to supply the additional oxygen. This leakage of heat, by the way, is what makes alcohol especially dangerous in cold climates and in cold weather — in other words, under the very conditions which seem to bid especially for its use.

As to the alleged stimulating effect upon the brain, the question seems to be largely one of experimental psychology. The usual psychological tests consist in the measurement of so-called reaction times. For a brief period the response of certain nerve centres is quickened under the influence of the drug. That this is so, all are agreed. That the final effect, however, upon the

reaction time is entirely adverse, all are likewise agreed. All are agreed, too, that after this adverse effect sets in, the subject still goes on, for a time, imagining his reactions to be unusually rapid. The point of dispute, therefore, is merely whether the brief acceleration of reaction time extends to the higher nerve centres at all, and whether the apparent quickening of the *lower* centres is a direct effect due to stimulation or an indirect effect due to the earlier paralysis of those higher centres whose office is to restrain the lower ones from running amuck, as it were. When the report of the Committee of Fifty was published (1903) this question was still in dispute.

At all events, one thing is certain: alcohol is no stimulant except temporarily, and that through the nervous system alone.

Tea and coffee, on the other hand, are genuine stimulants; and, according to the authorities relied on in the United States Dispensatory for 1907, their action is direct, not only on the nerves, but on the circulation as well. The action of tea and coffee on the general physiologic economy, then, is quite opposite to the action of alcohol. On the brain, too, the effect is opposite, stimulating those higher centres which alcohol (under the paralysis theory) is said to depress. Thought is usually, though not always, accelerated. Some-

mes, however, the acceleration is too great for convenience, producing confusion instead of facility.

Tobacco, of course, is a narcotic. Though its action upon the pulse is exceedingly complex — at times accelerating and at times retarding its action, and sometimes in one order and sometimes the opposite — the retarding effect prevails, impeding not only nerve action, but heart action and respiration.

As to stimulation, therefore, tea and coffee stimulate both the pulse and the nervous system; alcohol stimulates only the nervous system, and that but briefly, its real effect being depressant; and tobacco, though it sometimes acts anomalously upon the pulse, is prevailingly depressant to pulse, nerves, and lungs.

But, after all, neither stimulation nor depression is an end in itself. It is only when we have translated these influences into terms of the other three economies above mentioned — digestion, relief of fatigue, and promotion of endurance — that we begin to understand their utilitarian significance.

Consider then, the first of these utilitarian offices, namely, the supposed aid to digestion.

There are several ways in which digestion may be aided. The digestive secretion may be stimu-

lated through a direct action upon the nerves which control the glands; or, after the stimulating substance has been absorbed from the alimentary canal into the circulation, it may promote in the blood itself the generation of the digestive fluid; or, finally, the stimulating substance may aid in the chemical action of the digestive fluid after the same has been fully secreted and begun its operations upon the food.

As to alcohol, Professor Chittenden's part of the report shows that its effect on digestive operations varies according to the amount in which it is taken; the form in which it is taken; the part of the digestive tract which it reaches; and the strength of the native fluids before the alcohol is introduced. Professor Chittenden's report amounts only to the assemblage of considerable data; and from these it is out of the question to estimate the total effect. Professor Atwater, in his part of the report, summarizes the matter thus: "In moderate quantities alcohol may and sometimes does stimulate the secretion of digestive juices. It may also impede their action after they are secreted. It thus aids or hinders digestion. Under what circumstances it helps or hinders is not yet fully understood."

It must be confessed that here is exceedingly slender warrant for those who wish to use alcohol

as a digestive agent. Indeed, one striking fact which Chittenden affirms is that, in all parts of the digestive tract, the weaker the native fluids the more decided must be the inhibitive effect of the alcohol upon the chemical action. It would seem, therefore, that those who most need its help are least able to get it.

Next, consider *tobacco* as a digestive agent.

Tobacco increases the flow of digestive fluids. But according to Cushny, smoking often produces dyspepsia and want of appetite, probably through the nicotine that is swallowed in the saliva.

Next, consider tea and coffee. These are known as aromatic nervines. The mere anticipation of gustatory pleasure excites a response from the digestive organs. This, which is the common effect of all desirable foods, is the effect also of tea and coffee. In excess, however, the effect of tea, as described by Sir Lauder Brunton, is to impair the digestion; first, by discouraging hunger; second, by injuring the mucous membrane of the stomach; third, by rendering some foods (he mentions “butcher’s meat”) more stubborn of digestion.

On the whole, the question seems to reduce itself to a logical dilemma. For those whose digestion is good, none of these “nervines” can render any service except to encourage over-

eating. For those whose digestion is bad, a doctor's prescription should be sought — especially in the case of alcohol, whose action is so various according to general conditions and particular organs, that none but an expert should venture to prescribe it. Moreover, all of these nervines may easily impair digestion instead of helping it.

The second popular recommendation of these four substances is that they relieve fatigue. Now there are three ways of relieving fatigue. The first and the most clearly legitimate one is to rest; a second is to start the secretion of digestive fluid; a third is to drug the nerves which register the feeling, either by stimulating them, as with tea and coffee, or by anæsthetizing them, as with alcohol and tobacco.

These are quite different phenomena. The effect of taking a rest when Nature demands it is to readjust the entire internal economy. The effect of starting up the digestive fluids calls for explanation. We all know that there is an immediate sense of relief from the mere taking of food. That this relief does not come from any actual supply of energy is well understood: the food is not really available for several hours, and some of its energy is even stored up for several days. Now fatigue consists, party at least, in an impover-



ished alkalinity of the muscles and of the blood. When the secretion of gastric juice is stimulated, this alkalinity is restored. Possibly, then, all of these nervines may have this restorative effect.

As for the nerves, to relieve fatigue through them, must, of course, be accomplished either by putting them to sleep so that the rest of the body may have a chance to recuperate — as when the doctor drugs a man for insomnia — or by stimulating them so that they forget their pain and continue their demands upon the body until both are exhausted. The danger in sleeping-potions we all know. The dangers in stimulation as a relief are clearly pointed out by Sir Lauder Brunton. But the matter may more conveniently be discussed in connection with the next and last popular recommendation of these four nervines.

The last popular recommendation is that they enable us to do more work on equal or even less nutrition.

This is, in fact, the only consideration that is worthy of the attention of twentieth-century men. Efficiency and economy are the real fruit we are seeking. Of the fallacy at the core of this proposition — that more work can be done on less fuel — we may defer the consideration until we have found a drug which shall first give some appearance of bearing out the proposition at all.

Tobacco we may put aside without pausing for argument. It has many devotees, but none that credit it with the power to promote endurance. The universal practice of athletes is to abandon it while training. And on the mental side, though it is sometimes said that tobacco aids thought by inducing composure, Cushny finds no evidence on the point except the conflicting snap-judgment of users.

Alcohol, at one time, had not a few advocates; but upon careful overhauling, alcohol, too, has been conclusively found wanting. Of testing its effect there are two ways: one is brief experimentation upon a single muscle or group of muscles (a forefinger, for instance) while under the influence of the drug; and the other is the systematic observation of many men while the drug is, and while it is not, a part of their daily régime. It is by both of these tests that the true character of alcohol has at last been betrayed. What Dr. Abel calls the "pernicious theory" that alcohol is an aid to muscular work, is quite exploded. Experiments with endurance machines make it clear that, although for a few minutes the rate of work is increased under the initial stimulus of alcohol, there follows sooner or later a depression of efficiency below the normal; and observations by athletes and by employers of labour

agree in condemning alcohol as a means of increasing muscular endurance. Sir Frederick Treves, surgeon to the late King of England, has described the relief column that marched upon Ladysmith. “The first who dropped out,” said he, “were the drinkers; and they dropped out as clearly as if they had been labelled with a big letter on their backs.” “Both science and empiricism,” concludes Dr. Abel, “teach that alcohol is not a practicable source of energy for the performance of physical labours.” And, as might be expected from the narcotic effects already described, he still more unequivocally, if that were possible, condemns its use when mental efficiency is in question.

Strange as it may seem, tea and coffee, which furnish no jot of fuel, have the better standing as auxiliaries to both physical and mental work. Experiments with caffeine, the essential principle of coffee, show that it increases both the strength and the endurance of the muscle while the muscle is under its influence. Kraepelin believes this influence to be exercised directly upon the muscle; at all events, the same effect may be produced by injecting the caffeine into the muscle directly. But the United States Dispensatory for 1907 calls caffeine a “powerful muscular poison.” Injected in large quantities it diminishes capacity instead

of increasing it, and eventually produces rigor, like rigor mortis.

These are brief muscular experiments. What of continuous labours, long sustained — that is to say, sustained day after day, for weeks or months? Before we indorse an artificial aid of endurance, we should make sure that there is to be no untoward reaction.

Of sustaining continuous labour for weeks and months, there are several conceivable ways. First, there is physical training, which gets the bodily processes into smooth running order — among other things, gets the great circle of ingestion, transit, and elimination so perfectly balanced that blockades do not readily occur. Second, there is the improvement in this same circle brought about by omitting to *introduce* any materials especially calculated to promote blockades; that is, by omitting the glut of nutrition, and especially the glut of protein and of those toxins that are bred from protein. Third, there is outright stimulation.

The explanation of the immediate effect of tea and coffee in deferring exhaustion has just been given — some kind of stimulation, perhaps, directly muscular. But what shall we say of polar explorers, and soldiers on the march, who are cited as examples of the long-sustaining powers

of tea and coffee? That these drugs wash out the, bodily blockade is conceivable; but I have found no advocate of this view. Indeed, even after a man has already washed out his own blockade by training or by reforming his diet, it is not doubted that he can still keep himself going *beyond even his trained efficiency*, with the further aid of these drugs.

But is there not beginning to be something here that savours of high finance? There is a certain law called “the law of the conservation of energy,” never promulgated by any board of directors, and absolutely binding on the Universe. Even your high financier does not really make something out of nothing. He only seems to. Now, the Universe may be big and brutal, but it is not a faker. The proposition that any substance can permanently elicit from us more work on less nutriment carries its falsehood on its face. It is entirely a question of algebra. On the first side of the physiological equation is fuel, and on the second side (assuming that the subject is neither growing fat nor losing his nutrition through excreta) are work and body warmth.

Thus:

Fuel = work + body-warmth (a by-product, according to one theory).

• Neither side of this equation can vary a jot without a corresponding variation in the other. Any increase of work, in a system not blockaded, must come at the expense either of some item on the second side of the equation or from some increase in the first side of the equation. But by hypothesis, there is no such increase on the first side. Hence, either some of the fuel which is ordinarily used for heat must be diverted to work, or else *the body must turn cannibal and begin to consume itself* — or, at least, *consume its necessary reserve*. For long-sustained exertions, therefore, tea and coffee must simply act as confederates in one or other of these illegitimate processes. Gautier suggests the first view: that somehow the system “may be put into such a state,” as he vaguely expresses it, that some of the fuel which usually supplies warmth is diverted — or economized, if you will — to the purpose of supplying muscular energy. Sir Launder Brunton suggests the second explanation: that, normally, the body, as it becomes exhausted, registers a warning in the sense of fatigue; that, under the influence of tea (he discusses only tea), the nerves, whose office it is to register that warning, are kept in ignorance of the impending exhaustion; but that the exhaustion goes on just the same. Indeed, one theory of fatigue is that

normally the nerves are the first to become exhausted, leaving a margin of merely muscular energy still in reserve. If this theory be sound, then Sir Lauder Brunton's explanation becomes very clear; the nerves are not allowed to call a halt until the usual margin of safety has been invaded. These, then, are the two explanations. They are not necessarily inconsistent. Indeed, both mean robbery, either of reserve warmth or of reserve muscular fuel. It is said that Peary's company of explorers made free use of tea; and truly their haggard appearance upon their return would suggest the inference that, either by the use of tea or by the use of sheer will-power, they had succeeded in playing the cannibal upon themselves. No doubt, for a man hurrying back from the ghostly pole, or for a man driving a jaded animal out of a conflagration, any amount of lashing is justified even at the cost of future efficiency—it is better to survive with a remnant of yourself than not to survive at all. But to take the lash as a part of your daily training were the height of folly. No one ever heard of a boat crew training on tea and coffee. Just before the last mile, no doubt, they would welcome a hypodermic injection of these drugs—provided they had no race on for the following day. But life is a long race and

its critical problems consist always in its following days.

( Sooner or later, then, the economic effect of stimulation is disastrous. Sir Lauder Brunton so finds.

This disposes of the popular utilitarian arguments in favour of these drugs — the arguments which have to do with the general bodily economy — as follows: In the matter of *digestion*, except tea and coffee in the character of aromatics, none is of an unquestionable assistance; all, including tea and coffee, easily become detrimental; and (this is the present writer's deduction) even assistance is detrimental to a bodily economy already sound — and if unsound, then to be one's own doctor is bad practice. *Fatigue* they relieve — certainly tea and coffee and, I doubt not, the others as well — through the mere promotion of digestive fluid — a procedure which, in the absence of something to digest, strikes me as unnatural; and also through deceiving the nerves. *Endurance* they impede, except tea and coffee; and these promote it, in part, perhaps, by directly poisoning the muscles; in part, perhaps, by diverting the normal heat of the body to the special demands of the muscle; and *certainly*, in part, by diminishing present fatigue at the expense of future energy — and especially at the expense of the nerves.



In the discussion of these nervines, it is customary to treat separately of their alimentary effects and their pharmacological or drug effects. Let us now consider the latter. Whatever else they may be, pure alcohol, nicotine, caffeine, and theobromine (an element in cocoa and chocolate) are classified as drugs or poisons. It is true, as Dr. Abel points out, that a perfect definition of poison seems impossible. By Fick it is defined as “any substance which, introduced into the blood in comparatively small amounts, causes disturbances in the function of any organ.” The weakness of this definition lies in the phrase “comparatively small amounts;” for, as Dr. Abel again points out, there is no substance which, in *sufficiently small amounts*, cannot be taken without *demonstrable* injury—the emphasis, however, being on the “demonstrable.”

This is doubtless a true distinction; but is it not a rather academic one? If a poison is so deadly that 9 milligrammes of it will annihilate me in three minutes, no doubt I can still take 9 milligrammes of it in nine years without injury, either demonstrable or undemonstrable; for I may drop 1 milligramme in a gallon of water, and after stirring thoroughly, drop 1 milligramme of the resultant solution into another gallon of water, and so on through fifty repetitions; and, of the final dilution,

swallow just 1 milligramme. This were no rash performance. Yet to persuade me to abandon its use altogether, it is enough for me to know that 9 milligrammes will annihilate me in three minutes and that the *harmful effects short of annihilation do not really stop at precisely the point where they stop being visible*. After the injurious effects, therefore, cease to be traceable, on whom is the burden of proof that they do, or do not, as a matter of fact, cease to be predicable?

To put this burden upon the drugs, I purpose first, to describe the fatal dose of each; second, to emphasize the comparatively remote and previously unsuspected ailments now known to be caused by each; third, to point out the disheartening vagueness of what is called "moderation" as a test of safety.

Alcohol is a very slow poison. To induce immediate death twenty ounces might sometimes be necessary. Yet  $2\frac{1}{2}$  ounces would be a sufficiently dangerous dose; and this  $2\frac{1}{2}$  ounces is precisely what can be oxidized in a day when administered as Atwater administered it; and, according to Atwater,  $2\frac{1}{2}$  ounces is about what is contained in a bottle of claret or three or four glasses of whiskey. But if alcohol is a clumsy poison, it is an unusually versatile one, for there is scarcely an organ, a function, or a tissue which it does not reach.

nicotine is quite another story. Of this, 9 milligrammes, *i.e.*, 9 one-thousandths of a gramme, (authority says 6), will kill an adult. Nicotine acts as rapidly as prussic acid. A fatal dose produces death in three minutes, or, if large enough, in a few seconds. Dr. Hare gives the case of a smoker who swallowed a piece of ignited tobacco from his own lip and fell unconscious. Fourroy gives the case of a man who died in convulsions from simply lingering too long among tobacco bales. Death really comes from asphyxiation, the lungs giving out while the heart beats on.

Caffeine, the essential poison of both tea and coffee, I have no information as to the fatal dose, there being one; but a drachm ( $\frac{1}{8}$  of an apothecary's ounce) of citrated caffeine, given to an adult, has produced "faintness, nausea, tremor in the extremities, abdominal pain, great cardiac oppression, and finally collapse" without loss of consciousness.

Let us now consider the consequences of continued abuse. First, alcohol — among the more immediate consequences of more pronounced abuse are drunkenness, delirium, stupor, and insanity. In Switzerland, the effects on sexual life are conspicuous during the vintage time, and especially nine months after, when the percentage of defective born is especially high.

Next, the consequences of less pronounced abuse, in the case of the same drug, alcohol. For these "no precise figures are available," says Dr. Welch. But certain it is that (to quote him further) "the bodily injury inflicted by alcoholic abuse *may be entirely latent* [italics are mine] until it is made manifest by some accessory circumstance. Thus delirium tremens, neuritis, and other nervous manifestations of alcohol often make their first appearance as an accompaniment or sequel of some acute febrile disease such as pneumonia or traumatism, the loss of blood, emotional shocks, or other affections. Or the bad effects of immoderate drinking may be unsuspected until they influence unfavourably the course and outcome of some infectious disease or of a surgical operation." Alcohol also contributes to the hardening of the arteries; and you know it is said that "a man is as old as his arteries." Metchnikoff finds that alcohol reduces the fighting ability of the white corpuscles. And the International Congress on Tuberculosis in 1905 adopted a resolution to fight alcohol as a confederate of tuberculosis, against which it was once considered a defender.

These, then, are some of the more remote consequences of less pronounced alcoholic indulgence.

Taking up the tobacco phenomena in the same order: for the consequences of very excessive use, we have the following testimonies: According to Dr. Bremer, of St. Louis, there were, in the asylum over which he presided, cases of paresis in which he could find no other cause than tobacco. Dr. Philip Zenner, of Cincinnati, had a case of epilepsy as to which he concluded that tobacco, though not the primary cause, was probably the last straw. Drugs failing, he set about reforming the habits of his patient; and, after all other reforms had been introduced with little success, he prohibited smoking — whereupon marked improvement promptly manifested itself. Among those who work in tobacco factories, colour blindness is common, and many employees have to be discharged because of failing ability to classify the tobacco rightly according to colour. Girls who work in tobacco are especially susceptible to tuberculosis. According to Dr. Jacoby, many of them are carried off by that disease between the ages of fifteen and twenty-five. Of the more remote consequences of less pronounced indulgence, “tobacco-heart” is notorious. Besides tobacco-heart there are tobacco-liver and tobacco-kidneys. Tobacco-heart is often accompanied by a dyspeptic cough. This is due, according to Dr. F. D. Maine, to the effects of the

drug on the trunk nerve which controls the involuntary action of both heart and stomach. Its adverse effect on the mucous lining of the throat and nose is sometimes thought to produce cancer. Catarrh is a common consequence. That tobacco stunts growth is illustrated not alone by precocious criminals, but even by reputable college youth who do not smoke excessively. The smoking of a single cigar raises the blood pressure markedly; and tobacco, more decidedly than alcohol, promotes that insidious disease, the hardening of the arteries. It is a significant fact that men, much more than women, suffer from this disease — arteriosclerosis.

These, then, are some of the consequences of less pronounced indulgence in tobacco.

As for tea and coffee, according to Gautier, coffee may be employed to produce hallucinations. This will serve for an example of the immediate effects of excessive use. For more remote effects from less pronounced indulgence, according to Sir Lauder Brunton, after the chronic use of tea, "the power of self-restraint is diminished and the person becomes nervous and unduly sensitive, timid and emotional. Not infrequently ringing in the ears is felt, giddiness, headache, sometimes severe neuralgia and tremulousness." A soldier in the army once came to him for neuralgia.

The soldier used tobacco and alcohol in moderation, but tea excessively. Brunton deprived him of alcohol and tobacco without effect. The soldier then went to another doctor, who deprived him of tea also — whereupon he recovered. "Neuralgia," says Brunton, "has been described as a prayer of the nerve for better blood and more of it;" and tea, by stimulating the blood and starving the stomach, encourages this condition. Finally he says with confidence that this combination of stimulation and starvation "will certainly produce a tendency to mental derangement, even if it does not actually determine its onset."

These indictments against the four drugs refer to more and less remote consequences — but they still pertain to what is now acknowledged as more or less immoderate use.

The question at last arises: What is really *moderate* use?

In the case of tea and coffee I have seen no definition of moderate use; but Sir Lauder Brunton, who defends the moderate use of tea, speaks with apparent admiration of the procedure of his Russian hostess, in whose country he had already begun to marvel at the prevalence of tea drinking. Of her he inquired in what proportions she made the infusion, and received the vanquishingly funny reply: "I am extravagant in tea.

We are twelve at dinner, and I put in four teaspoonfuls, but most people would not put in so much."

What is the moderate use of tobacco? Again, I have heard no dictum. But let us consult the observations made by Dr. Seaver, at the Yale gymnasium. At the beginning and the end of a three-and-one-half-year period he took careful measurements of a large class of college men. He found that non-smokers grew more rapidly not only than regular smokers, but than irregular smokers as well; and I suppose irregularity is as good a test of "moderation" as can be had. The divergence was most marked in the matter of lung capacity. In lung capacity the non-smokers outgrew the regulars by 77 per cent. and the irregulars by  $49\frac{1}{2}$  per cent. — this in three-and-one-half-years!

What is "moderate" use of alcohol? Anstie, writing in 1864, asserted that two ounces of absolute alcohol daily — about as much as can be oxidized in twenty-four hours when given as Atwater gave it — was perfectly safe. But Dr. Abel, in the report of the Committee of Fifty, which was published about forty years later (1903), declared that "the mean oxidizable amount can be shown to have various untoward effects;" and he comes to the conclusion that the equivalent



e-half a pint of table wine in the twenty-four  
 is the real amount that is not injurious.  
 epeats, however, that all poisons are capable  
 ing taken without *demonstrable* injury, with  
 mphasis (as usual) on the "demonstrable."  
 again he says that the harmlessness of this  
 pint indulgence is "as nearly demonstrated  
 ch a proposition can be." But he admits  
 if taken during the performance of a duty  
 ring clear judgment or great concentration  
 ind, alcohol is injurious "*in any form or*  
*nt.*" Moreover, the ban which he puts on  
 e during *physical* labour, though not explicitly  
 ed to "any form or amount," is so applied,  
 citly, if I understand the context aright.  
 the reason why alcohol thus interferes with  
 cal efficiency he confesses is still obscure.  
 re at once he starts a brace of suspicions as  
 e limit of safety after he has prescribed that  
 saying that there is still a mysterious adverse  
 on muscular energy, and that as for men-  
 ficiency the drug is still "injurious." Sus-  
 is thicken when we learn from Dr. Welch  
 the adoption of lower standards is due to  
 r knowledge — "especially," says he, "as  
 er-drinking in relation to its effects on the  
 and arterial system." He adds: "Instances  
 been reported in increasing number in recent

years of occurrences of diseases of the circulatory, renal, and nervous systems, reasonably or positively attributed to the use of alcoholic liquors in persons who [*italics mine*] *really never became intoxicated and were regarded by themselves and others as 'moderate drinkers.'*" Perhaps in time, therefore, Dr. Abel's half-pint of table wine per day, taken under restrictions, may dwindle to just plain nothing. At all events, the fainter and slower the cumulative damages, the more dependent we become for their detection upon statistical comparisons — comparisons of many men for a long period. It was thus that Dr. Seaver's comparative measurements uncovered the stealthy progress of tobacco-mischiefs which I suppose no therapeutic test under heaven could have detected.

Are no statistical comparisons available, then, in the case of alcohol? Yes, among insurance companies. But of course the actuarial figures supplied by these are not so hair-splitting as one could wish. They do not expressly discriminate Dr. Abel's half-pint users, if any such there be. However, they do discriminate so-called "temperate" users; and immensely to their disadvantage. The Scepter Life Insurance Company (as reported in bulletin No. 3 of the Provident Savings Life Assurance Society, dated March

15, 1910) found that, among its policyholders, during a twenty-year period, there were forty-six per cent. more deaths among the “temperate drinkers” than among the total abstainers. And there are many other actuarial pronouncements to the same general effect. The Provident Savings Life Assurance Society is now openly engaged in urging total abstinence upon its policyholders. Surely this is a curious change in ideas since those of sixty years ago when an English Quaker was charged a higher premium because he was a total abstainer!

Here then is the pharmacological record of our four nervines: insanity, epilepsy, neuritis, neuralgia; impairments of liver, kidneys, blood, and arteries; impairments less severe and more remote as the dose is diminished, and finally disappearing altogether — until the closer observations of a later generation, or recourse to mortality tables or to comparative measurements, shows us suddenly that we have not really been safe — only oblivious.

How, then, does the burden of proof come out? Were one of these drugs with all its indictments on its head now proposed for the first time to be imported from the Orient, how should a man vote? Had I the requisite skill, I should have been tempted at the outset to put a hoax upon the hostile

commentator by reporting that a certain drug from the Mountains of the Moon, bearing some name more uncouth than *haschisch* was bidding for admission to the United States. I would have enumerated its properties, showing its anomalies from an alimentary point of view, showing its damaging effects from a pharmacological point of view, and ending with the concession that, in common with all other acknowledged poisons, it could not be proved harmful below an *uncertain* point. Having thus entrapped the commentator into taking sides against its admission, kindly but firmly I would have led him up to the discovery that its real name is alcohol—or any other one of the four. Considerable apprehension has been recently aroused over the new expedient of artificially injecting oxygen into athletes about to compete. Yet oxygen is the very breath of life. Why should the fact that certain drugs are old and familiar, while oxygen, in this special use of it, happens to be a bizarre idea, induce us to sit in judgment more sternly upon oxygen than upon drugs?

Here is the indictment. What is the defence? In the last analysis, I believe, it will be found to be nothing but the “general practice of mankind.” Now the general practice of mankind is a fair consideration. In the case of an article with

ten points in its favour and only one against it — as oxygen — the general practice of mankind might well be considered enough to overbalance the one adverse point. But in the case of an article with ten unmistakable points against it, and the mere scruple of a doubt in its favour — as alcohol, etc. — the general practice of mankind should carry little weight. For where shall we look for the causes of our present low estate but just precisely in that same general practice? At least, this was Professor Chittenden's idea when he began his assault upon the general standard of protein ration. As to the general use of drugs, is it not enough to know that 97 men in 100, who do not die of violence or accident, die of some ailment or other; that of these 97 not one but is utterly astonished when the blow falls; that of the causes which have undone him the exact analysis is beyond our ken; that the great bulk of the causes, however, are in some way or other alimentary; that these four drugs are alimentary; that these four drugs, as aliment, are entirely anomalous; that up to now, as knowledge has ascended, the standard of safety has descended?

And yet even the experts not infrequently allow themselves to beg the question by taking for granted the infallibility of their patient, the world. Consider, for instance, Sir Lauder Brun-

ton's very mild defence of very mild tea. His animus is merely historic. Finding that many peoples of the earth either brew a vegetable concoction or chew a leaf from which a concoction might be brewed, he is content to search out a reason. He decides the reason (in the case of tea) to have been partly that the incidental boiling of water kills the germs in the latter, partly that the use of tea enables us to trade more effectively on reserve power. Then he proceeds to devote the bulk of his article to a vivid portrayal of the dangers in such a trade — a trade, the way, which looks impossible, if the tea can be as mild as that Russian brew which Sir Lauder Brunton seems to approve. These are strange contradictions: tea valuable for deceiving fatigue; deceiving fatigue eminently dangerous; the wisest habit so mild as to have little or no effect in deceiving fatigue.

Brunton's article, of course, is not really made for a defence, but rather a warning.

The point is that, in the last analysis, not every defence of these drugs, whether expert or popular, will resolve itself into the mere reiteration of the general practice of mankind. It is curious, however, that the dominion of custom, or general opinion,

Among lawyers it is common knowledge that the most fair-minded judge is not immune to this in-

ence; and the same holds good, no doubt, of medical judges also. We are all human. To be human is an amiable foible of which, as applied to doctors, I happen to be informed of a very remarkable instance. At a professional symposium, a certain doctor had spoken more charitably of alcohol than was thought to square with prevailing medical opinion. In private — not by a physician, but by a political economist — he was taxed with his words. At once he swallowed them: that is to say, while insisting that his views had been sound, he caused the official report of those views to be revised so as to suit the spirit of the occasion. Meanwhile his words had been correctly reported in the newspapers, but, as it happened, *charged to another doctor!* The latter was painfully put out; and, for a time, rushed about the town, trying to head off the false rumour. I say for a time; for presently he, too, fell in with a private persuader, and, being graciously informed that the views attributed to him were not very obnoxious after all — in fact rather commendable — his anxiety at once subsided. And who was this who thus had power to reassure his scientific scruples? Not even a political economist, this time, but a newspaper editor, no less! This is not fiction, but fact; and I only regret that I, who tell it, have not the name and the genius of Æsop!

Finally, how do the authorities really stand? Few, I believe, if any, regard these nervines as indispensable. Some defend the "moderate" use of one or another. Some merely refuse to condemn. Some, perhaps, condemn in secret, but, like astute reformers, do not think the time yet ripe for attempting to convince the "common herd," and so content themselves with emphasizing the dangers and advising "moderation." Perhaps the weight of numbers is on the side of "moderation" as a sufficient defence, rather than complete abandonment. But in the case of alcohol — the only one of the four which has yet made itself sufficiently conspicuous to earn a body of explicit authority — the tide is setting more strongly every day against even "moderate" use. Even as a therapeutic expedient, alcohol has lost caste. In May, 1908, the West Virginia State Medical Society passed a resolution to the effect that, in years past, the medical profession had been deceived by alcohol, and pledged themselves thereafter to "discourage the use of it, both in and out of the sick-room." In seven countries there are societies of abstaining physicians; and these have been joined into an International Abstaining Medical Association. In 1903 an International Medical Manifesto was issued, which, among other things, expressly repudiates



so-called “moderate use” of alcoholic beverages, and urges “total abstinence” as the “surest, simplest, and quickest method of removing the evils which necessarily result from their use.” This was signed by more than eight hundred abstaining physicians of numerous nationalities — German included — all, presumably, men who are jealous of their professional reputations, and many bearing distinguished names. Among the more distinguished advocates of utter abstinence (of whom at least the first two and the last four, as I have ascertained, are signatories of the manifesto) are the following: August Forel, of Switzerland; Kraepelin, head of perhaps the greatest clinic in the world for the study of mental diseases; Gruber, one of Germany’s most distinguished professors of hygiene; Aschaffenburg — these three from Germany; Laitinen of Helsingfors, Finland; Max Kassowitz, of the University of Vienna, Austria; Sir Frederick Treves, surgeon to the late King Edward; Sir Victor Horsley, perhaps England’s greatest neurological surgeon; Dr. G. Sims Woodhead, professor of pathology in the University of Cambridge; Dr. Nathan S. Davis (deceased), dean of the Northwestern University Medical School, Chicago; Dr. Winfield S. Hall, professor of physiology of the Northwestern University Medical School; Dr. T. D.

Crothers, professor of nervous diseases in the New York School of Clinical Medicine; Dr. Frederick Peterson, professor of psychiatry in Columbia University; Drs. Howard S. Kelly and G. L. Hunter, of Johns Hopkins University.

However, Louis Cornaro was a user of wine. In his books, to be sure, he points out with some surprise that in the summer he had to give it up, and in the fall must use new wine instead of old — a change which involved (though he did not know it) less alcohol. But at all events, if men can be content with the equivalent of half a pint of table wine per day, taken at times when they think they have no use for efficiency, physical or mental — as demanded by Dr. Abel; with straw-coloured tea at the rate of four teaspoonfuls of tea-leaves for twelve people — as applauded by Sir Lauder Brunton; and, after growth is unquestionably complete, say at the age of forty, with one expensive cigar in forty-eight hours, smoked immediately after a meal (this about the cigar is my own suggestion) then the solicitude of the present writer will be nearly if not quite appeased. At least, it will be so far reduced as to be no longer “*demonstrable*.”

But granting that you have decided upon “moderation” instead of abandonment, an

entirely new series of doubts immediately springs up.

First, who, except non-users, will manage to hold themselves down to such *excessive* moderation, so to speak?

Second (leaving quite out of this book the altruistic idea of being our brothers' keepers) how are we to manage that stupendous business of being our *children's* keepers? No one who is both educated and rational will tolerate the thought of granting even tea to children. We all recognize their enhanced susceptibility to whatever is deleterious. There is a case on record — doubtless it could be duplicated many times — of a certain baby whose father was obliged to be much away from home. The father, like other fathers, was wont, when at home, to caress his child. But it began to be observed that whenever this affectionate father came home, the child sickened; but grew normal again when the father went away. The phenomenon was explained by a physician who said, “If you would keep your baby well, stay away or don't smoke.” Now if the limit of safety is somewhat vague for adults and decidedly lower for children, at just what day and year of his growth shall you quit your vigilance in preventing your boy from following your lordly example? Is it when he shall have arrived at

college age and passed under the scientific scrutiny of a gymnasium director? Dr. Seaver has shown us that this, at any rate, is too early to remove the parental restrictions.

Third, though each of these drugs has a limit of safety, by what test shall you determine that you have *found* that limit? If we cannot trust Anstie, how can we trust Abel? Indeed, Dr. Abel would not deny that the limit varies with different men; and an arbitrary standard for wine and not even an arbitrary standard for the other drugs — such a situation as this hardly constitutes an illuminating guide for a man's daily behaviour. Dr. J. Stark, of Germany, to be sure, is very careful to state a more easy rule. In effect, his rule is this: if you have a headache next morning (are "more or less indisposed"), you may reasonably suspect that you have transgressed. But, sure, if the level of eventual safety is not far short of the headache level, then not only the major premise of this book, but the report of the Committee of Fifty as well, and also Dr. Welch, are made ridiculous.

But I believe there is a test, and that Mr. Fletcher has properly defined it. Of course, in a magazine so vast as our world, there may be excellent things which do not appeal to the pristine appetite. But at least, in general, if appetite

rebels against a candidate for admission, there is a strong presumption against the candidate. If alcohol be first held in the mouth, and fondled by the tongue and palate, and vindicated not by anticipated pleasures, but by its immediate effect on the sense of taste, few, if any, would swallow it. I believe that the same thing holds true even of tea and coffee when entirely free from the palliations of sugar and cream, and submitted for the first time to a healthy organism. At any rate, as for tobacco, who can believe that a sound boy whose blood is not already tarnished with epileptic or other morbid tendencies, inherited perhaps from intemperate parents, would cling to his first cigar, except for the pride of display, or that he would return to it, after the first revulsion and retching, but to show his grit? Nor can I stomach the notion that an organism which has finally bowed to the yoke and begun to “tolerate” so hostile a force, is either as clean or as securely protected as one which is still free to recognize an enemy when it sees it. I cannot doubt that Mr. Fletcher is entirely right when he repudiates any hunger which has not its residence in the mouth. The hunger of the blood is illusory. The nerves which visit the interiors of our bodies do their duty when they register fatigue. It is their office to express hunger for rest, not hunger for food.

Hunger for food is the business of the mouth. But too many of us have learned to be hungry with our blood — have allowed tiredness to get into the habit of masquerading as hunger, and then taught our palates to make way and let some filthy visitant rush in to the embrace of the blood without first giving the countersign of a sweet taste.

This brings us to the non-utilitarian argument in favour of drugs — the pleasure they give. Now it might be expected from a man of such obvious austerity as I have exhibited in this chapter, that I would spurn this pleasure-consideration with discordant laughter. On the contrary, let me declare at once that, in my opinion, this is far the best, not to say the only, argument that can be brought to the support of these drugs. But there is a further difficulty. Putting aside the suspicion that the pleasure of them must altogether vanish when they are taken in quantities so minute as Dr. Abel, for instance, allows in the case of alcohol — putting this suspicion aside and, for the sake of argument, assuming that they are capable of yielding up their pleasures long before they begin to exercise their pharmacological influences — we find one other sinister influence to be reckoned with; an influ-

ence arising out of the very nature of the pleasures in question. Consider for a moment the nature of those pleasures: Wine affords relaxation after a nervous day in the office; brandy is found comfortable after a cold ride; tobacco is soothing after an excessive meal; strong coffee rouses after poor sleep. It will be noticed that every one of these pleasures is a *substitute* for something genuine which Nature originally intended. For instance, for the inspiration after a poor sleep, Nature intended the delight of coming out of a good sleep, earned by a whole scheme of life which is hygienically sound; for the soothing after an excessive meal, she intended good digestion earned by a modest meal; for solid comfort after a cold drive, a blanket, a crackling hearth-fire, and a companionable wife — the fire vouchsafing heat to the surface of the body and inward, instead of sending it to the surface of the body and there dispersing it, and the wife (the scandalous Mr. Kipling to the contrary notwithstanding) excelling even a cigar for poetic inspiration. The sinister fact about the drugs is that they give these delights unearned and out of their due sequence. When a man is tired and nothing but sleep will do, these persuade him that he is fresh and vivacious; when he ought to be lively, they allure him to take his narcotic ease. In other words, they

encourage us to sleep when we should wake, to wake when we should sleep, to work when we should play, and to play when we should rest; and (to complete the ritualistic formula) "there is no health in us." That men sometimes *must* work when they should play and play when they should rest, is indeed actually advanced as a justification for drugs. It is a justification which I can more easily concede to the factory hand who finds in outright drunkenness his only substitute for the pristine pleasures of his nature, after his morbid employment has turned his physiological rotation topsy-turvy — more easily to him can I concede this justification than to his employer, who has both cash enough and wit enough to order his life differently. Really, the eligible remedy is not to cure one evil with another. For a thwarted rhythm of life the only remedy eligible to a proud nation is to start fresh and readjust the rhythm.

And that will be the object of the next chapter



## IX

### ACTIVITY OR RHYTHM

**A** MAN'S body is given him for working his pleasure upon his environment. At least, that is what he wants it for. When he can no longer do that with it — no longer hew trees and build railroads and write books — he would as lief cast it aside altogether. In other words, it is a tool.

To prescribe the uses of a tool so versatile as the body of man, were an apparent curtailment of its liberty and a piece of impertinence. Indeed, no matter how a man may be forbidden to meddle with his inner mysteries, no common-sense reason seems to suggest itself why he may not do what he will with his tool — achieve locomotion by means of its head instead of its feet, if it so please him — that is, so far as the external effect is concerned. But there happens to be a curious reciprocity between a man's outside business and the law of those inner forces which enable him to transact that business. While he is busy at the outer world, at the same time he is unconsciously

putting his nutrition through its paces; those paces are not indifferent; they are ordained. Notice that the blood is so adapted that when occasionally a man would work his blood will circulate the more swiftly, and entirely for no other purpose than to be constant and enable him to work hard. But having been once trained, several thousand years ago, to accommodate itself to occasional exhilarating work it has come to expect the exhilarating work occasionally; and so, finally, to be dependent upon the same as a necessary stimulus and a means of cleansing itself. If a man neglects his exercise, therefore, his internal economy will suffer.

This mutual adjustment is in strict accordance with the law of evolution. The practices which created the human organism thereby became necessary to its continuance. Omit now what you were first evolved *by* doing, and you will suffer ill sequels — inside, but eventually outside, too; that is, the power of your too great exertions will evaporate. Therefore, what it pleases a man to perform upon his environment ought to be what will please his life-stream also; if not, it is time he were pleased to do something else.

This does not really place a limit upon things which a man shall *accomplish*, but upon the *manner* in which he shall accom-

am. The manner must be such as will propel  
s blood according to its ancient law. And the  
me of that law is rhythm — accelerations and  
tards; bursts of speed and recuperative pauses.  
om the perimeter of the universe to the central  
op in a man's heart, this law is operative. The  
ns revolve about the suns; the earth revolves  
out itself; the seasons change; night alter-  
ates with day; man works and sleeps again; and  
very function that is man's is subject to this  
lythmic law.

Physiologic rhythms may be divided into three  
asses: protracted, brief, and instantaneous. The  
rotracted rhythm is that which compensates for  
day's labour with a night's sleep. The brief  
hythm is that which compensates for a spell  
output with a breathing spell. The instan-  
aneous rhythm is that which keeps up an end-  
ss chain of imperceptible compensations, straight  
rough all the normal forms of exertion, whether  
nscious or unconscious. Among the conscious  
e walking, running, and dancing. Among the  
nconscious are breathing, heart-beats, and peri-  
alsis. By this law, even the heart secures about  
teen hours of rest each day — between beats.  
By means of the one side of this rhythm, namely,  
ertion, the material of life is broken down and  
oved on. By means of the other side, namely,

repose after work, the material of life is built up. The momentary relaxation, for instance, enables the vital forces to gather them together for the next contraction. Or, again, a breathing spell enables them to gather for the spell of output. These are two of the three constructive processes. But, meanwhile, the destructive process is *gaining* on the constructive; when night comes, the balance of power swings the other way. Accordingly, sleep assumes dominion, and, in some manner wholly mysterious, rebuilds and rebuilds, sets all things in order and piles up the inward ammunition in available places for another day's campaign upon the element.

Not one of the compensatory periods subtracted, brief, or instantaneous — can, with impunity, be neglected. Mr. Willard Moyer, in his book on "The Witchery of Sleep," describes the contestants in those bicycle races in which the object is to cover as many miles as possible in six days. For six days the monsters work enormous distances; their eating is commensurate with their work. Nevertheless, they grow steadily thinner. Is it their rations that are insufficient. But how does Nature work these up into tissue? She waits for sleep. The author likewise exposes the delusion of Napoleon, who fancied he could skimp his

initely. "In his last battles," says Mr. . . . er, "his power of resistance was so slight that ctually went to sleep during the fighting. . . . foundation of his downfall was laid in Russia, a lack of sleep and unwise living generally taken away his mental elasticity, deprived him l power to form and carry out resolutions, and lted in his final ruin."

ne same considerations apply to the brief im. Herbert Spencer so neglected its require- s that in his latter years his brain became erse. It refused to do consecutively his bid- . The only resource for the disappointed isopher was to make the brief rhythms briefer. ook to a boat with his secretary. While the l was good in his brain, he would dictate; a it went on strike he would work at the oars; minutes for the brain, five minutes for the — and it was only by this belated surrender e law of rhythm that Herbert Spencer escaped omplete dead-centre of his powers.

either, with impunity, can the more minute ms be neglected. I suppose nobody has d to observe how much more fatiguing it is to l still for an hour than to walk for the same h of time. My legs only too well remember rtain military parade in which, as a young I enjoyed the proud distinction of marching.

The marching was great; but, among other things, I had the privilege of waiting for certain distinguished reviewing officers to move at a snail's pace along ten or fifteen miles of my standing comrades. And, oh, the irk of it! Not even the honour of being reviewed by Sherman and Sheridan could make tolerable that dead, interminable, but vague agony. To march again was like heaven for relief. And I found that, marching instead of standing, I was able to hold out with considerable comfort for several hours longer.

Five college fellows, of whom I was one, travelled in Europe. Among other places of interest we visited the Rhine. In order to put no slight upon the claims of that renowned river, we have waived the blandishments of the comparatively expeditious "Bummel-Zug," and committed ourselves to the deck of a snail-like sort of steam contrivance, known as a "Dampfer-schiff." And then did we begin to float between the vineyards. No, the Rhine is no less beautiful than renowned; nor will I play second to any man as a worshipper of Nature or a tribute-payer to historic associations. But, all this to the contrary, the Rhine, when it pleases, can be a wondrous muddy river; and it will hardly be denied that there is a certain morose gloom about her vineyards. Perhaps I had over-eaten or under-slept. At any rate, I was beginning

: gloomily, when suddenly I caught a gleam of life from the eye of a hostile chum. The call was instant; we were sitting by the rail, on a bench, facing each other; and disregarding all tonic manners, by a common impulse we rose, put each man his feet in contact with those of the other man, and then tugged! It was a kind of glorified mutual stretch. In thirty seconds order was restored; in thirty seconds, the fibre in my body was warm and singing. In thirty seconds my whole philosophy of life had been revolutionized. I stood up. The scene was a charming river and her vineyards and loveliness!

It is not only repose that men neglect, but also the other half of the rhythm — spirited exertion. The course of life cannot be swept and garnished with an occasional obsession of the vixen house-storming up and down the halls, and hurrying dust and refuse out of the way. With nature it must be one thing or the other — hurry or retard. The middle course is what she cannot abide — the dead monotony of mere equilibrium. Tell me why it is that children sooner or later, almost without knowing how to stand erect, become stooped and shambling. All in a moment the change comes; and it comes at that particular moment when the sedentary life, to which they

had previously been strangers, is unceremoniously thrust upon them. What does that change involve? When the human frame is supported by a chair, though the muscular action is decidedly diminished, it becomes permanent and without relief. Rhythm is at an end. Prior to this time, nature prompted variety, mobility, impulse, whim, incessant action. Nine-tenths of the time the youngster was wont to be in every conceivable posture *except* an erect one; but whenever the wayward little pendulum did come to a rest, it hung the way it was made — straight as an arrow. As soon, however, as an erect position began to be required of it *all the time*, the old paradox showed his hoof: the child became increasingly unable to comply with the express requirement.

Notice, finally, that every physical pleasure in life (barring appetite) is a variant of two generic sensations: the sensation of haste — that is, exhilaration; and the sensation of recovery — that is, repose. But neither is agreeable except as it follows the other. Mere sitting still is no comfort. But to sit still in order that some delightful process of readjustment may go on through all your members is worth the day's labour which brought about the wholesome weariness. With the luxury of drowsing off to sleep after a day's healthy excitement nothing physical can compare — except the



complementary pleasure of waking again to a new day, earned by a night's wholesome slumber.

It is not for nothing that these transitions, thus earned, result thus in pleasure. For pleasure was the only test of expediency which was vouchsafed to the primitive man. The primitive man had no intellectual discretion to guide him. He knew only when he was tired and when he was eager, and he never resisted either call. Nor have we yet got much beyond the necessities of these two procedures, nor above the pleasures which they confer. The economy of life has never changed, and no substitutes can ever take the place of its original methods. This explains why stimulants and narcotics are unscientific. They are like those addle-headed devices by which men have frequently persuaded themselves that they had achieved perpetual motion. Stimulants and narcotics can only imitate the sensations of exercise and repose; they do not condescend to that elaborate physiological *quid pro quo* whereby Nature decreed that the genuine sensation must always be earned. But the law of the conservation of energy is not to be hoodwinked. Napoleon could not circumvent it; Herbert Spencer could not — neither can you nor I.

## X

### FATIGUE

**O**F INFRINGING this law of conservatism through rhythm, the penalty is an unwholesome fatigue. And the universality of the law of infraction may, therefore, be measured by the universality of fatigue. In some degree, few of us are free from it, even for a moment. We grow used to it, bed with it, rise with it, live with it. Would we have such an object, in the twentieth century, as a man leaping and shouting for sheer vitality, be taken for a lunatic or a freak of nature?

Besides being the great predisposing cause of fatigue, in and of itself, is the most pitiful of the outcroppings of bodily abuse; and this, because its conspicuous blotches do not appear upon the body at all, but upon the spirit. It might be hasty to infer that all shortness of temper is due to the poisons of fatigue; but any man who has observed himself carefully will have discovered the following fact: that small annoyances which he never has the power to ruffle the surface of his countenance when he was fit, will operate, when he

tired, like a thousand fish-hooks jerking in his flesh. In the face of a big calamity, he may still show himself both brave and considerate, because a big calamity is at least plain and unavoidable; and yet, under the nagging influence of fatigue, he may find himself both cowardly and cruel — because he does not know what is the matter with him. He does not see anything ostensible to resist. His irritation he can only ascribe to something in his environment — something malicious which will not come into the open and fight fair — his neighbours, for instance, or the members of his own family. He selects the nearest object and begins to abuse it; until, for the insults which he thus bestows upon his wife, he would often like to bite off his tongue. But the pathos of it is that at the very moment when he wishes he could apologize, the fatigue that is in him is working up a fresh outburst.

To emancipate ourselves from this dirty pest of fatigue, we must conquer two obstacles: namely, the irrational construction of our chairs, and over-work.

Among chairs, office chairs are the least objectionable. By revolving and tipping, they offer an occasional imitation of the versatile behaviour of children. The pity is that it is children alone who are denied their benefits. When school

chairs shall be made on some flexible principle, not inconsistent with schoolroom quiet, and desks shall at the same time be made adjustable to at least an occasional change of position on the part of the chairs, an important step forward will have been taken.

But variety will not afford the complete solution. Variety in sitting will always necessarily be subject to pretty narrow limits; and beyond those limits, the sitting posture should be kept as *natural* as possible. As chairs are now constructed, that posture is unnatural in a very singular way; a way so patent that twenty years ago a little child pointed it out to his parents; yet a way so frozen into custom that those parents, together with the rest of mankind, continue to submit their persons to the obnoxious mould. The trouble is this: at the very point where, to accommodate the small of the back, there should be a convexity in the back of the chair, the back of the chair presents a concavity instead. This invites the spinal column to project itself into the spineless opening; the whole body to sink upon itself; the walls of the abdomen to sag loosely — hence portal congestion and its consequences. If you would know how chairs ought to be constructed, consult F. B. Carpenter's famous picture of Lincoln and his Cabinet. Meanwhile, to round shoulders

and abdominal flaccidity there are antidotes that might be suggested: nudge yourself to walk erect; in your calisthenics, give special attention to that zone of muscles — back, front and sides — which supports the trunk of the body; and, through laughter and song, keep alive that important inward muscle, the diaphragm.

But there is an interference with rhythm more potent and more ubiquitous and more subtle even than chairs. It is the master-vice of mankind, overwork by name. Or rather it is the human proclivity to get absorbed in one thing without end, whether work or play. As a child, man finds it hard to quit his play. As a man, he finds it hard to relinquish his work; and he is more childish about the latter temptation than the former.

There is much false philosophy whereby we try to persuade ourselves that overwork is, somehow, more pardonable than other vices — such, for instance, as overplay and tippling — even that it is not a vice at all, but a virtue! First, there is this flattering difference between overwork and other vices: Other vices afford immediate gratification to the senses at the cost of the future. Overwork, on the other hand, is not agreeable to the senses even for a moment, and is yielded to, not in disregard of the future, but for the sake of the future. All work is a kind of a battle on behalf of the

future; and every soldier is proud of his scars. But, alas! even in this respect, there is less of difference than of similarity between overwork and other vices. For overwork, as truly as any other vice, consists in a fallacious balance between present considerations and future ones. The only difference consists in the set of considerations which receive the unfair advantage. The ordinary reprobate is greedy of the present; the overworker is greedy of the future; and both get punished in much the same way. The reprobate ends, trying to atone for his sins by means of good resolutions — of which he has accumulated a great stock; the overworker ends, trying to negotiate a new lease of health by means of his money — of which he has accumulated a great stock. And the superfluous money is no more efficacious than the glut of good resolutions.

Let us not be deceived. The intolerable tyranny of overwork is due to our weakness, and not to our strength. The toper, confronted by his dram, has not so sinister a problem in forbearance as you have when your work begins to get chronic. It is always at the precise point where relief becomes physiologically imperative, that the next move in your work begins to strike you as especially critical and immediate. At such a moment it is as hard to withhold your hand from the next move

as it is to refrain from winking when an object flashes within an inch of your eye. Lest you withhold your hand, the devil puts into your mouth the following arguments:

“The emergency is unique. If I wait until to-morrow I shall lose the inspiration.”

But that is where you are wrong. It is now, and not to-morrow, that your inspiration will be lost. It is being lost already. Your faculties are becoming blurred. That is why you are afraid to stop. The problem is fading. You fear that by to-morrow it will be quite invisible. And it will be, unless you stop while there is yet time. It is not really the problem that is fading, but your faculties that are growing misty. By to-morrow they will be nebular. Or, if not by to-morrow, then on some morrow, sooner or later, — some morning. And morning is the very worst part of the day to begin with a vapour in the brain. If once you get into the way of beginning your mornings in that condition, the effect will be cumulative.

But there is another argument which you find your lips uttering: “If I finish this business to-day, I will have the more leisure to-morrow. An afternoon of sport to-morrow will be more beneficial than an hour of mild repose to-day.”

Again you are wrong. Make good your escape

at once, or else, by the time you have finished the job you will find yourself already committed to another — not even knowing when it arose. The proclivity of jobs to insinuate themselves into your existing engagements, behind your back, more astonishing than the skill of a pick-pock. Your inability to count on duties in advance like your fatuous calculations as to the capacity of a trunk when you begin to pack it. The mere leisure you promise yourself in the future, breaking the back of the present, the greater clutter of jobs you will find already on your hands when the moment of supposititious leisure arrives — and also the less clearness of head where to choose among them, or to desist from all. Be sure of this: in mundane dispensations, nothing is ever finished. You may as well give up counting on a period when no duty shall await your attendance. You can never hope to get across the congested thoroughfare of life to a nook of safety if you wait for a perfectly open space.

But, once more, you will be saying: "If I do an extra hour's work to-day, I shall have an extra hour's product to show for *this* at least."

And the insidious feature here is that at last you have spoken the truth. Only it is not the whole truth. It is true to-day. It is true



tomorrow. It is true every day, taken separately. And yet it is not true at all. It keeps the promise to the ear, but breaks it to the hope. The flaw is not in individual days, but in the transitions between days. The loss is invisible. *What you add to the product of to-day you take away from the product of to-morrow* — partly by having to do over to-morrow much that you thought you had done perfectly to-day; but chiefly by diminishing the *rate* of your work to-morrow. To-morrow you will not be so skilled a workman as to-day. On the other hand, the opposite conduct has the opposite effect. An hour off to-day, when the body asks for it, diminishes, to be sure, the day's product; but the product of succeeding days it increases — not by adding time, but by increasing efficiency. It is thus that, in my school days, my lessons were better got in football season, when loyalty to the captain compelled me to interrupt the study for the game, than in winter, when, even for gold, I could not have been induced to quit my desk, and yet grew less attentive every minute and every day. On the same principle, certain factories have lately begun actually to increase their profits by diminishing the hours of overworked men.\* After all, then, it is not alone your future health, but your future wealth also,

\* "Government Report on National Vitality," page 45, etc.

that will benefit by present temperance in the matter of work.

This is argument. Argument never saved a toper — no, not even when he conceded it. I myself, am violating my own precept at the very moment I write it down upon this page; and I say this, neither to be amusing nor to prove my honesty — I would lie about it, if I thought lying would help. But my own case signalizes the kink in the problem; especially as I am about to propose a solution.

For there *is* a solution; and I who stand in need of it know what it is. It is simple interruption — the root of which vigorous word is from the Latin “ruptura” — “break.” Already you have had some practice at this art of smashing into the day’s affairs. Your dinner is a rupture, is it not? Only it is as much an institution as what it interrupts; and, therefore, you would never think of either dodging it or putting it off. You have given yourself a definite time for beginning your dinner, just as you have given yourself a definite time for beginning your work. Did you ever give yourself a definite time for beginning your play? In fact, did you ever think of play as one of your duties at all? *Duty*. I admit that the word carries no very playful suggestion. But fire must be met with fire. It is only by institutions that we

can defend ourselves from institutions. Do not trust to vacations, nor to impromptu sports. By a vacation alone it is no more possible to store up energy enough for the balance of the year than it is possible, by a week's gorge, to stuff the body with a year's fuel. Nor by impromptu sports is it possible to insure due regularity. If Nature intended fifty glands to undergo forty stretchings in three days, we cannot allow even three days to get by without forty stretchings of the fifty glands. There is method in Nature's engaging madness. True, the impulsiveness and the laughter are a part of that method; but if we cannot have these, we must not forego all. If a frolic with your child is better than mere mechanical motions, mechanical motions are better than no motions at all. Get the frolic when you can. But have the motions, at all events. When society, by force of custom, begins to lend a gregarious element to its exercise, frolic will become as exalted, socially, and will be found as necessary, as grand opera. Should lawyers, for instance, who, more than other men, are subject to the tyranny of unforeseen engagements, suddenly force all the wool-sacks, wigs, bars, benches, and calendars to accommodate their secondary affairs to the game of "One-Old-Cat" as the divinely appointed business of a certain hour each day, the exhilaration and the laughter would

soon follow, and so would the rest of the world with similar customs. *Whereupon the miller would not be far off.*

Meanwhile, with a stolid face, if need remains for the isolated individual to lay plans; to thrust in an entering wedge, or (if change the figure and be more specific) it is useful that you erect in your life three rocks of — “sacred minimums,” call them — minimum relaxation, calisthenics, and sleep. To throw yourself like an acolyte; and around the importunate ocean of business rage in

Do not let these minimums revolve about other engagements. Make your other commitments revolve about these.

Nor may you count your children out of your studious régime. Childhood is a lucky period of thoughtless immunity. We are apt to forget that the child's immunities cannot follow the child into manhood. When manhood is reached, and manhood's bewildering exactions begin to threaten the novice, do you think that he can be expected to discover earlier in life than you did (and may be too late) — still less to train himself *applying* — the principles of the sacred minimums. What is needful in order that the second generation may start (and finish) better than the first,

when manhood is reached and sport for sport's impulsive sake is left irretrievably behind, something salvatory should survive the obliterating plunge, even if it be only a mechanical exercise. The custom of having a time apart for such expedients must be cultivated *before* its practice is actually necessary. It must go with the child into the period of maturity with such a momentum of acquired habit that, like dinner and tooth-brushing, it cannot be stifled. Through family observance, the child should be made so addicted to the oblations of health that the omission of a single one of its minimum rites would leave him as uncomfortable as dirty linen. And here, by the way, is an additional clamp upon your own failing resolution. To create family observance you must belong to your family. You cannot put yourself aloof from the benefits of your own prescription by previously exhausting your best powers at the office. It is your child, and not the property you would be accumulating to put into your child's legacy, that has the first lien on your fresh powers. Join with him, therefore; and by the gregariousness of it, you shall manage to give to the sacred minimum some tincture, at least, of the impromptu exhilaration of the dearly remembered breach of etiquette upon the Rhine.

## XI

### ENVIRONMENT

#### SUNLIGHT AND AIR

**M**AN was born in the open. His structure and his functions were the resultant of geologic ages of clash between himself and his environment. Or, rather, he is himself but an extract from his environment; and of his environment the most immediate and automatic elements are sunlight and air.

Were sunlight and air visible objects, perhaps they would have been taken at their full value; but a long-lived spectator, sitting in another planet, could he have beheld our goings-on for a geologic age (device after device for getting away from sunlight and air, and apparently with malice aforethought), would he not be sore puzzled to put a construction on us? Obvious as is the atmosphere of an alien planet, however, the atmosphere in the very midst and by the very means of which we live and move and have our being is invisible to ourselves; and its putting aside has been entirely

and the man was faint, Pflüger aired the cabinet, and then put the man in it again, this time only up to his neck, leaving his lungs free to the air. In a somewhat longer time than before, the victim again became faint.

Up to this point, therefore, the following conclusion seemed to be established: that the skin is nearly if not quite as sensitive to the condition of the air as the lungs are. But there remained another principle to establish, namely, that it is not for nothing that outdoor air is almost forever on the *move*. Accordingly, another investigator, Paul, played the cabinet game — this time, varying, not the purity nor the humidity of the air, but the movement of it. The sensations of the victim remained tolerable just so long as the air was kept in motion by means of fans. Stop the fans, and at once the bad conditions began to tell.

To my mind nothing is more persuasive that a return to nature is inevitable, than this striking succession of benefits obtained from merely approximating such a return, a step at a time. First, we unswaddle our persons. Second, we put them in fresh air. Third, we put that fresh air in motion; and with each manœuvre we draw nearer to the heart of health, even as we draw nearer to the conditions which originated health.

But discoveries of this kind never come singly; and there remains one more to be mentioned:—When once we set out to cure tuberculosis, we found not only that the benefits of fresh air were not confined to one disease, but that the benefits of outdoors were not confined to fresh air. It was hardly possible to seek fresh air without finding sunlight, too; and this great, genial physician, for whom we had not been looking at all, returned good for evil, and did not deny to men the same golden largesse which he had meanwhile been bestowing upon flowers. If there is any disease typical of our age, it is nervous prostration; and for nervous prostration, sunlight, as well as fresh air and repose, enjoyed in Adam-like simplicity, has become a well recognized therapeutic expedient. I have seen a man — happily, the owner of a remote farm — who, having fallen victim to nervous prostration, would lie for many hours of the warmer days in one of his golden meadows, nude as in the golden age; and though in other respects he was still far from a comely specimen, the experience had at least given his body a golden burnishing, and thereby eased him of much misery. In Germany, where they are slow to reach conclusions, but quick to apply them, among the advertisements of frequent recurrence is one couched in the words: “Licht-Luft Bad Anstalt.” Follow this up, and



you will eventually find yourself in a large lot, surrounded by a fence of inordinate height. And here, secluded, relatively free from the impurities of city air, amid piles of sand for lounging, and gymnastic appliances for activity, and bath-houses for the shower — here, clothed, but clothed with exceeding lightness, loungers of both sexes resort daily. Benjamin Franklin was ahead of his times in this as in most matters; and he made it a rule of conduct to expose his person every morning, before donning his clothes, to the medicinal influence of sun and air.

The reader need not take alarm. I am not about to propose a literal return to Eden. Science itself would demand no such sacrifice to our vanity — or rather our shame; for among the original properties of the air is its temperature; and the body was never evolved on the seacoast of Maine.

To describe the unswaddling of mankind in the degree which now seems feasible, I shall begin with a man who is able to build a house and about to do so. Let him select an open, sunny site. Let him so adjust its position as to insure a southern exposure for the rooms most occupied. Among these, let him have one that shall be roofed with glass, and, on three sides, walled with the same — opaque for privacy, and provided with revolving panels for ventilation. This shall be his “Licht-

Bad." Throughout the house let him have lows that are ample, both in number and in

For freedom from dust, if he be very pro-  
sive, let him construct his rooms with round  
ers; at least, let him use such cleaning appar-  
as will have the least tendency to stir up and  
ibute the particles. Let him have, of draper-  
of carpets, and of upholstery, the minimum  
will satisfy the eye; calling in, for the purpose  
evising ways and means of rendering undraped  
s good to look at, the services of an artist;  
if he can afford it, the services of a landscape  
ener — for adorning those portions of the  
s which are windows. Let him toil long and  
with his architect on the knotty problem of  
ilation. In the matter of a heating plant,  
rect hot air seems to be the best agent for ven-  
on; but, on the other hand, the sun is a  
ator, heating the air relatively little, lest we  
d not live in it. The man and his expert  
t work out this dilemma. But a mere fur-  
, of either kind, will tend to keep the air  
cially dry. Therefore, the installation of a  
idifier would be desirable. A tolerable sub-  
te is pans of water disposed under the various  
ators. For artificial light, the least vitiating  
ne air thus far contrived is, of course, elec-  
ty. Finally, that the air may receive the

last touch of assimilation to the air of outdoors, there must (some day) be contrived a device which will keep indoor air in motion — lightly, irregularly, and from varying quarters of the room. A sharp direct draught, of course, should be avoided.

The draught brings us to the question of costume. One object of skin ventilation is the stimulation of the nerves controlling the superficial blood-cells; another is the carrying off, by evaporation, of the moisture (and perhaps the poisons) which the skin is constantly excreting at the rate of about one and a half ounces per hour. It is for this, among other purposes, that nature has put the air in motion; or rather, to speak less teleologically, it is because the air already *is* thus in motion that we first came out of evolution's crucible with a skin adapted to that condition and no other. Draughts are a part of the universal scheme. We can never hope to escape them, but we can manage, and *have* managed to turn them to our injury. What shall we do, then, to escape — not draughts, but catching colds through the agency of draughts? Colds are not only one of the most prolific of predisposing causes, but one of the most universal annoyances. Few but full-blooded hygienists are essentially free from them. The secret of their bacillic origin is a matter of secondary concern. What we want is a way of

resisting the assaults of the bacilli. Foul air is the first concern; and the encumbering of the skin, the second. Let us here consider the second.

In our hunting stories, we used to read of the huntsman who determines the direction of the wind, by wetting a finger and holding it aloft. Instantly one side of his finger becomes cooler than the other — not because the invisible wind is cooler on that side than the other, but because its motion promotes evaporation, and evaporation produces chill. When one quarter of the person is thus *especially* moistened, and then *especially* exposed to a really considerable draught, circulation and nutrition are correspondingly disturbed, and, by whatever intermediate process, colds follow. The approved method of catching cold is first to expose the skin to such a means of disturbance; and, second, to blockade any of the means of elimination, whether through the skin or otherwise. Now, in our blind efforts to avoid the first evil — exposure — we succeed in courting both evils — exposure and blockade. To escape the draught, we swaddle ourselves in wool; the wool first promotes perspiration, and then blockades its evaporation. Besides this, it macerates the skin, keeping its temperature so constant that the nerves in control of the superficial blood-vessels become enervated and forget how to respond to the extra

demand of a little coolness. In this state of things — moisture being increased and the power of resistance diminished — a draught in due time inevitably strikes. Then the cold. Then the victim puts on thicker wool, thus increasing at once the moisture, the cutaneous enervation, and the blockade, and proceeds to catch a second cold a little more readily than the first. Had he consented at the outset to let his insensible perspiration escape as fast as it was formed, this vicious circle of consequences would never have set in.

Now the strongest person can catch cold. A savage, if struck in the abdomen by an icy blast from Maine, would incontinently die. The effort, therefore, to make reasonable provision against *too sharp* changes in temperature, is perfectly rational. But we have gone the wrong way about it; chosen the wrong material, and put it in the wrong place — next to the skin. Wool is an excellent interrupter of mere cold; but it is an equally excellent interrupter of moisture. In order that elimination may go smoothly on, the layer of air next to the skin should have some play, and the material next to the skin should readily deliver up to this air what the skin excretes. The first of these conditions is secured by having the material porous, and the second, by having it of vegetable fibre or of linen. If the interruption

of the cold seems inadequate, one may don another thickness of mesh or a thicker outside garment.

The full application of these principles requires that the outer garment also shall be porous. No layer of your windings — neither the lining of your coat nor the bosom of your shirt — should be of such hermetic quality that you cannot blow through it.

But the true argument, after all, is experience. And that this mode of dress, as a matter of practical experiment, is the way (combined with the other requirements of health) to avoid catching colds, is attested by those witnesses who seem to me best qualified for accurate observation.

Doubtless the last parts of the anatomy to enjoy emancipation will be the extremities. For our heads, the least we can do is to keep them bared wherever the rules of conduct are not too prim; use straw hats, as late in the autumn as custom will allow; and thereafter, have our cloth hats at least perforated for ventilation.

As for the foot, alas and alack! It is the worst sufferer of all. Once beautiful — far more beautiful and more cunningly adapted to its functions than the hand, so that in Bible times even poets did not forbear to mention it — it is now become an object of just contempt; so ill-ventilated that not even a daily bath can always keep it entirely

sweet; and so cramped and thrown out of balance that, to say nothing of its ghastly blemishes and ridiculous deformity, the very muscles of the back (if one is a fashionable woman, wearing her heel in her instep) must share in the penalty, suffering a succession of overextensions at every step, lest the body collapse forward. Since the gods of fashion do not yet permit us to wear sandals, the least one can do is, as often as possible, to wear slippers and low shoes, and always to keep as far as possible within the extreme of fashion. Perhaps, ere long, the same commercial opportunism which has put so much mesh underwear on the market will look for a dividend in ventilated footwear as well.

One last suggestion. It is well known that white materials are less impervious to the light than others; and the Greek costume,—always finely ventilated and often of linen,—was also preferably white.

## XII

### A CROSS-SECTION OF MENTAL HYGIENE

**T**HE body and the mind interact. We have already seen bodily fatigue making blotches on the spirit, and mental distress frustrating digestion. We may regard the mind, therefore, either as the motive power of the body or as the consummate flower of it; for, in fact, it is both. But since it is for happiness that we are really searching, it is chiefly for the sake of the mind — the seat of happiness — that we have proposed the cherishing of the body. It now remains to consider if the mind have not a hygiene of its own for the further promotion of its health. The subject is one which merits a book to itself. In so limited a space it were impertinent to offer more than a few suggestions.

What *is* mental health? At least, the central feature of it is cheerfulness. But for those that love an austere view of life, it may be conciliatory to add that cheerfulness cannot stand without the Spartan virtues of courage and purpose to support it, any more than courage and purpose can



long survive without cheerfulness to keep them in supply of red blood. Regard these, if you will, then, as the great trinity of human virtues—courage, cheerfulness, purpose. The question is: by what discipline may these be promoted, and the mind unshackled of worry, anger, and aimlessness, those devils which drag toward complete insanity?

It behooves us, first of all, to foster those initial conditions which foster cheerfulness. The first of these (and it includes the body) is that part of our physical environment which appeals most directly to the spirit, through the senses. We may as well give up hoping to keep the mind entirely sweet, if all the messages that reach it are tainted. The sounds, therefore, which we allow to prevail in our streets and in our homes must not be incessantly harsh; the sights not garish nor dim nor theatrical nor cruel. It is by no means merely for the gratification of vanity that we decorate our walls and fill our houses with music. No, for, as therapeutic agencies, both sound and colour are beginning to be recognized; and they will, in due time, doubtless, be as finely discriminated as the properties of any other healing power. The various charitable flower guilds are reporting phenomena which formerly, perhaps, would not have been credited; souls in the slums rescued

from listlessness and depravity — their courage and ambition rejuvenated — through the mere introduction of little gardens into the slatternly back yards, together with a bit of instruction as to the proper care of the same. I cannot forbear to record an experience of my own. During a certain municipal campaign I had, for several consecutive days, been deprived of my usual commuter's privilege (alas, not always acknowledged as such) — the privilege of returning, in the evening, from the town to the suburb. Office by day and cart-tail speaking by night, followed by a restless sleep in some hotel: for several days, this routine was my only fare. At last, it ended; and one evening I resumed my irksome travels. Again I found myself creeping out through the Jersey flats. Being tired, I forgot the newspaper. Presently, as it were, I began to regain consciousness — became aware of grass, trees, sky, and the broken light of evening. All at once there was in me a strange blend of emotions, which I defy any man to put into words: a kind of confusion of astonishment and prayer. Think of it — to “get religion,” from just looking out of a car-window across a stale New Jersey flat!

After physical environment as a condition to sanity, comes emotional experience. The mind is no less complex and versatile a thing than the body;

and a soul cut off from the red blood of an adequate and varied emotional experience will suffer atrophy as surely as will an arm permanently ligatured. The physical member, however, is more easily observed than the spiritual, and cannot for so long a time fail of making its needs felt. It is of our minds that we are unmindful. Stop for a moment and remind yourself of the wealth of your neglected emotions. Consider the array of them: love; amusement; kindly indulgence; pity; indignation; exhilaration; ecstasy; hero-worship; God-worship; Nature-worship; awe; astonishment; humour; fun; buffoonery; the grotesque; the uproarious; the hearty; the reposeful; the social; the lonely; yearning; satiety; defiance; loyalty; welcome; sorrow; fright; serenity; autumn; spring; quaintness; archness; — these are but the labels of so many spiritual *needs*, and by no means all. If you think the list exaggerated — a mere exercise in vocabulary — translate it into concrete examples. You have surely not forgotten Nature: the difference between the effect of her thunderbolt and of her “minute-drops from off the eaves”; between the Rocky Mountain crag and the nook among the Berkshires; between the purple gloaming with a single star in the midst, seen through a bower of California roses, and the flaring sunset, smashing through the smoke-hurricane that

envelops Mount Washington. Or, for less concrete but not less unmistakable examples, turn to music. Think of that whole gamut of effects from Schubert's quaintest of sweet songs, "Who is Sylvia?" to the triumphant splendours of Beethoven's "Overture to Egmont."

Do you think it is for nothing that Nature gave you a mind susceptible to all this? Yet, in the course of your typical day, duplicated by 365 in the year, how much of all this do you often experience? Not more than two emotions, I venture, if you are a business man — the acquisitive emotion and the bellicose; supplemented on Sunday perhaps by two others, pruriency and buffoonery, administered by the Sunday supplement.

Now, the word "supplement," though here applied to a bad thing, is a most excellent word. Every man stands in need of supplementation. In his meagre routine there is literally not room for more than one or two of the segments of the great arc of emotion. Supplement these, therefore, a man must. And, fortunately, those better capacities of life which we have not the opportunity to live out in very act, have been rescued for us by certain especially delegated servants of society, and sealed up in packages for easy access and transportation: I mean, in those books that are (perhaps) wasting on your shelves; in those pic-

tures that are (perhaps) gathering dust on your walls; and in those curious hieroglyphics set free as magical sounds by the singer and the violinist in the chambers you seldom or never visit. A man may banquet or starve — the choice is with himself.

But the mind cannot depend upon indulgence alone. It must be more than coddled. Exercise is also essential. If we get our so-called "culture," merely in the form of pap, fed to us from the extension spoons of university extension lecturers, we shall grow intellectually fat and soft. We must work up our spiritual nutrition into spiritual fibre. Of course, we need not aspire to be poets. We need not even rush into print. And yet, ought we not, occasionally, to exercise our wits and our affections in the composition of a birthday verse? — or our critical faculties in the preparation of a paper to be read at the club? Should we not hold sweet conspiracies among four of the family to confer pleasure on a fifth? These, the gregarious enterprises of love, are what make of a man's life something more than an animal's.

But we are approaching the point where the active virtues — courage and purpose — begin their sway. The body is not its own captain. It is captained by the mind. The mind, on the other hand, cannot look beyond itself for a captain.

Under the stress of circumstances, therefore, it must be trained to guard its integrity by means of courage and purpose; to conquer its own city and cast out worry, anger, and aimlessness, by main force if need be.

There are several active principles through which courage and purpose keep themselves in training. One of these is usually known by a name rather too long for an expedient so simple; for it is often administered by a slap on the back and a jolly word. When the help comes in this way — from another soul — it is called *suggestion*. When it comes from oneself, it is called *auto-suggestion*. Auto-suggestion means simply this: strike the attitude — go through the motions — of the sort of creature you would ideally like to be, and eventually you will become like your ideal. Dean Hodges tells us that a smile on the face induces a smile in the heart. Diffident business men, who have overcome their diffidence, know that they have grown “chesty” in proportion as they have stood in a chest-expanded posture of body and mind. Theodore Roosevelt has become almost a classic example of courage deliberately cultivated out of a retiring disposition in youth. If, therefore, you cannot at once abandon worry, at least adopt a sentiment against worry. Think it incompatible with your dignity as the king of

creatures. Contempt will, in time, breed unfamiliarity.

And another expedient, especially available against anger, is the habit of pausing for second thought. At every angry impulse, pause to reckon your impatience as an obscuration of your ideal. Try to look through it. Forget the purpose of the *moment*, which the annoyance interferes with, and remember the purpose of your *life* — to be worthy of yourself. Recognize your impatience, also, as a crass, pathological menace to yourself, with sinister powers of future growth. For passion grows with what it feeds on.

A third expedient is deliberate relaxation. One would suppose that this would come of itself; that when the mind was tired it would pause, as when a tired muscle drops from exhaustion. But this supposition is unwarranted by the facts of daily experience. We forget to relax. We forget to make use of the intervals between employments — as when travelling — for allowing our purposes to sink into abeyance. A man who carries a valise to a train and must again take it up on leaving the train, were very wasteful of energy indeed, if he should try to hold the valise at arm's length all through the journey. Yet through that same journey, if he stop to consider, he will find himself carrying burdens of responsibility — his nerves

perpetually tense. He would be surprised at the sweet peace he might win for himself by suddenly drawing a sigh of relief and accepting the present moment as a luxury. Scenery, faces, memories — these will perform a drama or a dream for his delectation if he but sit back and let them.

But relaxation and aimlessness are two things. Relaxation is pleasure. Aimlessness is torture. Indeed, aimlessness is quite consistent with unsuspended nervous tension. Aimlessness merely knows not its own mind, and this very condition may be due to a fatigued will — a will which has become stupefied and cataleptic through the very want of relaxation. It is in more than one way that aimlessness lies in wait, ready to hamstring us when we are on the very point of falling in with some beautiful experience. For instance, there is a sheer vacuity of mind which sometimes intervenes when absorbing occupations are laid by. Or, there may come the still worse opposite condition, when the mind suffers an embarrassment of riches — or, rather, an embarrassment of poverties — an equilibrium of faint impulses tending in diverse directions, but none of sufficient strength to induce action. Each half-hearted impulse is balanced against another, and the mind procrastinates pitifully. There was a young collégian (good conscience, it was myself!) who,



in an hour that was free from pressing obligation repaired to the gymnasium, sat down before his locker, and, after five minutes of languid consideration, returned to his room without fulfilling any mission whatever.

From a condition of will like this the only escape is a life with a plan. Nothing but method can redeem the Prince of Denmark. Abstract cheerfulness is not enough. Indeed, abstract cheerfulness is a mere figment — like Nirvana. What our faculties demand is something to be engaged upon — a concrete enterprise caught and pursued with the eagerness of a boy running to a fire. Happiness, it is true, should be spontaneous, and spontaneity is not the creature of rules. There is nothing consciously methodical about a boy running to a fire. But, after all, we are not children. A child, if left to his own devices, will never be at a loss for occupation. For him, nothing is too stale for investigation, and one delightful thing will suggest another. But with the grown slaves of civilization, it is not so. Civilization is a studious enterprise. Without study can be neither endured nor maintained. If there are indeed no rules for spontaneity, there are no rules for guiding us into the path of spontaneous influences. Though a man need not know in advance all the pleasures that may be tasted — all

Mysteries that may be explored (pity if he did!) — that he does need to know in advance how to get himself in line for the tasting and the exploring. That he must have is an orderly picture of the procedures which life affords, and a ready handle whereby to take up any one of them on short notice; for his leisure is brief and apt to escape him before anything is accomplished — beyond the sluggish perusal of that ghastly monster, the Sunday Supplement. At a man's disposal are literature, art, talk, recreation, philanthropy. It is a pity that college graduates are not dismissed from the care of their foster-mothers, each with a prospectus of these enjoyments, for his consultation through life. Meanwhile, it behooves us to fortify ourselves as best we can, and devise our own prospectuses.

When thus we have conquered worry, and anger, and aimlessness, we shall find that we have developed character — that condition of courage, cheer, and purpose which alone in all the world's history has earned hero-worship and won the kind of love that endures.

## XIII

### RÉGIME

A HEALTH MANUAL FOR OFFICE MEN

*If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces.*

IT IS one thing to subscribe to general principles; another, to put them into practice. Principle and practice are separated by a line as fine as a hair, but sometimes as difficult to leap over as the Grand Cañon of the Colorado. Like the man who perished in the snow within cry of his own house, men are every day failing of salvation for the lack of the final push which will carry from knowledge to action. What keeps men oblivious to their neglect is partly inertia; but partly, also, it is the press of business. The health-resolution which goes day after day unexecuted is only like the urgent letter which lies day after day unanswered. And yet, there is a remedy — the same which is applied in the prosecution of business. A business obligation is saved from permanent side-tracking through the vigilance

managing office. The home is the greatest business concern on earth, and is worthy of a managing office proportionately vigilant. No book can supply the management, but a book may perhaps advance its inauguration one step, by laying down an initial programme with which it would have begun operations. To supply such a programme is the purpose of this chapter.

The first consideration is

*Exercise.*

Since a man's engagements are dependent upon the engagements of other men, since one man can meet other men in business relations only during the hours which other men have, by common consent, adopted for business purposes, it is of the greatest difficulty to find a chink in the day for that sacred minimum of exercise which other men conspire to ignore. Perhaps the most available time is in the morning before breakfast. Let a man rise, therefore, an hour and a quarter before the moment when he must leave his house. This may be at an exceedingly unpleasant hour, and it must be conceded that Nature, though she planned for early rising, balanced by early retiring, never did intend that a man should waken suddenly at the dictation of an alarm clock. She intended him to waken gradually, after a reasonable indul-

gence in the luxury of yawning and stretching both of which she designed for some good purpose. But we must consent, if necessary, to sacrifice something of this luxury lest, otherwise, we sacrifice a still more indispensable element through crowding out of exercise altogether. Let man first yawn and stretch as much as he can, such an arbitrary signal. But, before it is late, he must be up; take a glass or two of water and then spend half an hour in attentions to body. These should consist of exercise, a bath, and (quite in addition to the use of towel) skin rubbing with the hands. Ordinarily the skin-rub should follow the bath; but in weather which induces perspiration it should precede bath. The exercises should be taken with windows open; or at any rate, in a room well aired in preparation. They should consist mostly of stretchings and torsions; and, for the sake of the vital organs, as well as the uprightness of the shoulders, should be directed principally to the trunk of the body — especially the abdominal zone. In order to achieve the maximum benefit in the minimum time (five to ten minutes) the exercises should be both systematic and vigorous, involving as many muscles as possible in a single evolution. The drawback of seeming perfunctory may be mitigated by appealing to the eye through a

mirror, and by the companionship, where space permits, of other persons going through the same motions in rhythmic concert.

An element in the exercise should be

### *Deep Breathing.*

For singers, diaphragmal and pharyngeal exercises may be taken after dressing — an additional allowance of time having been duly provided.

Before the exercises can be put into practice with the needful despatch, they should be learned at leisure in more comfortable hours of the day. And at first they should be taken in a less violent form and for shorter spells, than after the body is hardened up to their exactions.

Unless there is unlimited time, the

### *Bathing*

except on other occasions, need not involve the use of soap. The object, every day, is not primarily to clean the skin, but to invigorate it. Ordinarily, the best procedure for this purpose is hot and cold spraying in quick alternation, ending with the cold. Such an alternating bath, however, involves considerable apparatus; and in the absence of this, a cold bath is to be preferred, whether spray or plunge. Even after a bath for cleanliness — the hot bath with soap — there should follow a cold

bath, provided it can be taken without undue exposure in the transition. It is for the very purpose of making ready for the day's exposures that cold water should be the last to visit the body.

But never should the cold bath be cruel. It is enough if it sting the body agreeably; and to this end the temperature must be adjusted to the sensitiveness of the individual. Water that is almost lukewarm to the hand will often be positively acute to the other parts of a sensitive body. And the consequence of refusing, through pride, to adjust both the exercise and the temperature of the water to the capacity of the individual will be drowsiness in the afternoon, followed, after several days, by exhaustion; and this may become cumulative from day to day, defeating the very resistance to colds which the whole régime is largely designed to promote.

After a hot bath I find I am less likely to catch cold if the bath was taken in a cool room, so that I am not perspiring when I enter my clothes.

The next problem is the exposure of the skin to the medicinal properties of

### *Sun and Air.*

The exercises and the bath that have been scheduled above will serve the incidental purpose of breaking, if only for a few minutes, the day's

circle of suffocation. But the time will come when every house will have its glass room — its *Licht-Luft Bad* — where, at a temperature properly regulated, the occupant could repose for an hour or more of a Sunday, and perhaps occasionally for a few minutes on other days, taking his air-and-sun bath while reading, writing, or sleeping. In that event, precautions would at first have to be taken against sunburn.

After the calisthenics, it is time to dress. This introduces the problem of

### *Clothing*

which is only another phase of the problem of skin treatment. The clothing should be as warm as comfort demands, but everywhere porous — so porous that you can blow through any part of it — even the outer garment and the shirt-bosom.

After the clothes are on, the teeth should be brushed.

A half-hour is now supposed to have been consumed. Three-quarters of an hour are left for breakfast. This is intentionally an allowance of fifteen minutes more than the meal is expected to consume.

### *Every Meal*

should thus allow for an extra fifteen minutes at the end. Such a margin will act as a buffer



between the leisurely enjoyment of eating and the feverish business of money-getting which must afterward set in. A hard and fast rule should be adopted that, until this marginal allowance is entirely expired, nothing shall be in order but eating, talking, and loafing. When you have so disciplined yourself that no amount of chafing will enable you to get at your business ahead of time, you will at last find an inducement, during the meal, to drop the thought of business entirely.

Rest before eating, if you are tired; and after eating, rest again whether you are tired or not.

The other rules for the meal, as already elaborated, are:

Exclude utterly from the household all vicious things — hot condiments, and (if you accept the writer's argument) nervines.

Use a milk-ferment.

Have every meal balanced as to its threefold office, before it comes to the table.

Allow but a modest variety in any one meal.

Provide for the utmost variety in the procession of meals.

Other things being equal, give the preference to hard foods.

With its task thus simplified, give the palate free play under the discipline of Mr. Fletcher's régime — admitting nothing to the mouth for which the desire is not positive; allowing nothing to escape down the throat until the sense of taste is fully sated; whereupon, being liquefied, the morsel will find its own way down without your assistance; and, finally, rejecting from the mouth any fibrous residue which has refused to liquefy. If you enjoy swallowing it, do so.

With the meals, little or no water should normally be taken, except as it enters into the composition of the food. It may not be that water dilutes the digestive fluid or hinders the absorption of the food through the walls of the alimentary tract, but it does assist very insidiously in the swallowing of food upon inadequate chewing.

Yet water is necessary for flushing the system; and so few are the modern occupations which stimulate thirst, that we should

### *Drink*

conscientiously. We should drink copiously on rising, on retiring, also mid-morning and mid-afternoon. Nothing is more neglected than this rule, because nothing is more difficult to keep in mind. Try, then, to acquire the habit.

The complete flushing of the system involves adequate daily

*Evacuation.*

It is not deemed safe to indorse Mr. Fletcher's idea that this is unnecessary. Nor is regularity enough. There are degrees of completeness; and incompleteness will promote auto-intoxication, no matter how excellent your diet. To insure the highest degree of completeness, plenty of laxative food (fruits and fats) should be used. A Japanese seaweed, "ager-ager," is a good auxiliary. This is neither drug nor food but a fiber which acts mechanically. The posture of body, also, which Nature compelled before modern arrangements were introduced, is hygienic. It may be approximated by placing the feet on the rungs of a chair, drawn close, and by leaning slightly forward. In emergencies, and in almost any illness, from colds to fever, special measures are necessary. Under these circumstances

*Enemas*

become justified. They should be taken at about 80 degrees Fahrenheit. If too warm, they tend to enervate the eliminative powers.

A business man must go to his office. There, if he can afford it, he should have a back room con-

ing a couch; and, unless the demands of his  
nts are inexorable, he should, if the impulse  
nes upon him, retire to that couch for

### *A Nap*

n in the midst of business hours. From five  
fifteen minutes will often suffice to restore  
impulse to labour; and the succeeding hours  
l gain in efficiency more than enough to com-  
isate for the five or fifteen minutes conceded  
the rhythm of recuperation. Such recuperation  
l perhaps be unnecessary if, in other  
pects, his life is ideally hygienic; but ideally  
gienic it will not always be; and a man will  
netimes — perhaps daily — owe Nature a  
o.

When business hours close, business should be  
xorably put aside. Those who can, should, on  
many days as possible, so fix this hour as to  
ve time for exercise of a less perfunctory char-  
er than the calisthenics of the morning. Ideally,  
n should every day employ not only their super-  
al muscles, but also their

### *Lungs and Heart*

order to fan the bodily fires; and in order, also, to  
uce a good

*Daily Sweat.*

If there is not time for sports, there may at least be opportunity for a run on the way back from business, with time afterward for the necessary bath. It is to be hoped that, some time, every household will be equipped with an electric-light bath, which could be used on those days when exercise is impossible. Thus *no* day would pass without at least its quota of cleansing sweat.

After the bath, a man may slip into fresh clothes and a pair of slippers, and get into a

*Chair*

that is constructed with a convexity to fit the small of his back. If possible, he should have all of his chairs constructed on this principle, to discourage stoop shoulders and portal congestion.

After supper, the

*Teeth*

should again be brushed.

Thus, morning and evening (or, at all events, twice) they should be brushed; and, after each meal, floss silk should be used upon them, and the mouth and teeth rinsed with water — precautions intended not only to preserve the teeth, but to prevent them from dropping poisons into the alimentary well. Remember that Dr. Osler deems

the tooth problem not less important than the liquor problem. And so long as the problem of hard and cleansing foods remains unsolved, we must make the most of the dental kit.

We have discussed fresh air as applied to the skin, but not yet the general subject of

*House Temperature.*

This should be kept between 66 and 68 degrees Fahrenheit, at the coldest level in the room, which is the level of the floor.

Nor have we addressed ourselves to the subject of

*Ventilation.*

Ventilation is peculiarly important, for the reason that nothing so stealthily gets away from us as fresh air. The air is not a thing which, like exercise, can be attended to at a given moment. We swear by it; but while we are swearing we are sitting behind closed windows, simply forgetting that the weather has moderated enough to justify their opening, or not stopping to think that our talk might quite as well be accompanied by a stroll out-of-doors. Thus do the losses of countless opportunities for storing up life accumulate unobserved. To avoid these losses, ventilation should be as automatic as possible. To this end,

indoor conditions should be made to correspond with outdoor conditions as closely as the necessities of the case — the necessities of warmth and passivity — will permit. If you cannot build a house like that proposed in Chapter XI, at least you can cultivate the habit of opening windows on the slightest pretext, and keeping them open as much as possible, to that end having at the base of each window a slanting strip of wood or glass, so that, when the window is raised, the air may be deflected upward instead of striking the occupants of the room directly in the form of a draught.

The night, if possible, should be spent out-of-doors altogether. Otherwise, it should be spent in a room containing as many windows as possible, each of which, on a still night, should be open to the utmost limit. The bedclothes should be sufficient for warmth; and, if the bed is in a position to expose the shoulders and head to a draught, a wind-break should be set up around them. The only absolute necessity is a perpetual current of air overhead, into which the exhalations may project themselves in order that their impurities may be continually swept away.

### *Sleep*

is a mystery. Its restorative operations are literally untold — known to exist, but, as to their

nature, not understood. But one thing is sure; nothing in the long run can ever compensate for its loss. If the earlier rising necessitated by the morning exercise brings on earlier drowsiness at night, an earlier retiring must be the consequence. This is only a shifting of the day's occupations toward Nature's original schedule. But sleeping, like eating, can be overdone; and, happily, temperance in eating is one of the devices for inducing temperance in sleeping. Especially should the last meal of the day, if possible, be temperate. It is only after a light meal, not eaten too late, that slumber has a fair chance of being both deep and soft.

Sleeping and napping suggest the whole principle which underlies

*Régime.*

This principle is

*Maintenance.*

The body, like your business, is a matter of

*Capital and Income*

and the business of hygiene is to guard against living beyond your income. The object is to keep the capital of vitality intact, and even to increase it, if possible. Unless you have adopted



the perilous expedient of smothering fatigue artificially, by means of

*Nervines,*

*Fatigue*

will give

*Warning*

that your vital income is all out. If you go beyond this, and borrow from vital capital, you must pay the debt, if it be a small one, with a nap; or, if it be somewhat accumulated, with an extra day off; or, if it have accumulated still further, with an extra vacation. But what a man should provide is payment in advance —

*A Sinking Fund*

of unused vitality. If you are an employee, you sometimes cannot escape an odious dilemma: sometimes you will have to overwork or starve, because society provides no middle course. This is the fatal kink in society's economy; and in one of the preceding chapters it was shown how some employers have at last taken the cue, and, in a tentative sort of way, begun to apply to vitality the same principle whose application to money has hitherto distinguished wise men from gamblers — the principle that a modest income evenly

distributed is more profitable than a fluctuating income, however great at dizzy moments.

### *Mental Hygiene*

is the last on the list of considerations. As monetary capital exists only for bodily capital, so it is only for the sake of the mind that we need cherish the body at all. But the mind has requirements of its own for the further promotion of its health. As urged in the previous chapter, it must have a proper sensuous environment; proper nutrition through the arts; proper exercise through the offices of love — those gregarious enterprises of life; finally, through suggestion, relaxation, order, etc., it must win the victory over anger, worry, and aimlessness.

In this enterprise, as in the physical enterprises of hygiene, there is need of régime, for which a few suggestions are here ventured.

In the first place, one great source of spiritual strain is the clashing of momentary *individual* purposes among those engaged in the transcendent *common* purpose of maintaining a home. Often this clashing is due to a lack of business methods on the business sides of home life. The only way for two people to want to do the same thing at the same time, is to have a time apart dedicated to that thing, and other times apart dedicated to those things which they want to do separately. Unless

you would have your epistolary or other bill-paying inspiration interrupted by one calling upstairs and begging your attention to an interesting paragraph in the day's news, do not go to your desk whenever you happen to think of it. Go only at a time (and, if possible, to a place) set apart, by common consent, for the purpose, and kept sacred from interruption. You are then at your own disposal. Afterward, you are to be at everybody's disposal. That everybody be mutually at everybody's disposal, becomes the order of the next hour. Interruption is what that hour is for.

In the second place, even the old routine, if it is beginning to loom so big as to obliterate you, should be taken in something the spirit of novelty. It is when the mind becomes a stranger to new desires that stale old age creeps on apace. The manner of stepping up to any situation will largely determine its effect upon yourself. If you would have the effect refreshing, make a fresh start. If the duty is one which admits of performance in a new way, find a new way of performing it. A mere change of clothes for dinner will have a tendency to bring you to that enterprise awake.

In the third place, if cheerful table-talk has fallen out of use in your household, make haste to restore it by keeping mental or even written notes of whatever you observe during the day that

strikes you as promising interest to other members of the family; just as occasionally you bring home (or used to bring) a bouquet of flowers in the way of an attention to your wife.

In the fourth place, however, household attentions should be mutual. To have a deliberate course of mutual reading aloud, therefore, is a most excellent scheme for those evenings not devoted to social meetings outside the household.

But the social meetings outside the household may sometimes prove a still more excellent scheme. If you and your mate have grown too accustomed to each other, and are in danger of going stale, you had better dive together — and that at once — into the cold bath of other society. This will demand a new effort; but effort and newness are life itself — precisely what you lack. From calls which I really did not care to make I have sometimes returned with a new regard for myself and for the world. Old things, having flashed back from the facets of other minds, looked new again; and I was the readier to meet another day.

Here be rules. But do not scorn them. Their only use is to give, to those who need it, a nudge here and there where persons more child-like would know spontaneously what profit to make of themselves.

Each of the rules for physical health is coupled with its appropriate

*Caution.*

But the fundamental cautions may here be collocated. In the first place, sudden changes of habit — even from worse to better — are dangerous. With the exception of mental expedients, none of the rules, unless already in use, can be safely ventured upon alone by the aged or the sick. These must accept the personal guidance of an expert. And even those who are still young, must, if they are living sharply at variance with these rules, condescend to a plan of gradual readjustment. The newspapers tell the story of an ape which became a cigarette fiend for the delectation of the public. When a new state law suddenly deprived the ape of his habitual nicotine, he promptly died. Similar phenomena have been observed in connection with other rules in the list. In general, therefore, beware of flying too inexorably in the face of acquired impulses. Do not do with violence what goes entirely against the grain, even though the grain be turned for the present in the wrong direction. The failure to observe this precaution is responsible for much of the hard feeling which sinners entertain against salvation. Too poignant a salvation, having aggravated the

old pain, leads the sinner to mistake cause for effect; whereupon he spreads a false alarm among his fellow-sinners.

When you are under the weather, improve your elimination; drink more copiously of water; re-trench your nutrition; and correspondingly relax those very exertions, which are embodied in your régime. When you are really ill, however, do not shirk the doctor.

Meanwhile, abide by the essential principle of régime: on the one hand, not expecting too much; on the other, not taking fright at symptoms, but improving your régime at any improvable point, no matter how remote from the mere symptom.

It remains to utter one last word of exhortation on the analogy of Chapter I. For, as ills are cumulative, so are benefits cumulative. Therefore, stop at nothing. If, to the ventilation of the skin through porosity of clothing you can add the benefit of the sun-bath, add it. If, to the calisthenics of the morning you can add a run after business, add it. Be content with nothing at your command, so long as you are able to command something more. But, finally, do not reject a part because you cannot have the whole. (However baffling the conditions of your life and however apparently inexplicable its failures, all the good you will ever have of it will be in proportion as

you keep manœuvring toward the four great conditions: proper DIET; well-balanced ACTIVITY; a wholesome ENVIRONMENT; and a hygienic MIND.

Here, then, is your régime. To put it in effect requires effort; but, once in effect, to maintain it will require no more effort than tooth-brushing. All that makes tooth-brushing easier to maintain than to abandon is the fact that we have grown up with it. Let your child grow up with it: the habit of it in the gray matter of his spine; the philosophy of it in the gray matter of his brain; and the spirit of it in his affections.

**PART THREE**  
**WINNING ELBOW ROOM FROM**  
**SOCIETY**

*“ Give me where to stand, and I will move the world.”*

**ARCHIMEDES.**





## XIV

### THE ENTERPRISE

**A**LL our little reforms have now been proposed and made as easy as possible. And yet, at every point, have we not found ourselves contending with considerable difficulties? And at every point it was our neighbours that threw these difficulties in the way. For, if the common resorts and common actions of our neighbours are unhygienic, a decided limit is placed upon the efforts of ourselves. If theatres are stuffy; if our business rivals (or our employers) devote to business all the hours available for sport, and to business structures all the space; above all, if nobody will *join* us in our sport; we must find ourselves, though not utterly checkmated, at any rate sorely handicapped. I profess no motives of philanthropy; but at this point I begin to harbour a reformative design upon my neighbours. If the motive does not seem adequate, I may at least take comfort by remembering the sincere admiration which Gerald Stanley Lee bestowed upon Thomas Wentworth Higginson. Colonel Higginson was

musical, and, wanting a musical neighbour to bear him company, he bought an orchestra, subsidized a board of education, and coerced the municipality into making itself musical that he might enjoy himself.

You and I are bound to have a world in which we can live. And the change would not be a bad thing, even from a philanthropic point of view. For if it is painful to think of one man freezing to death within cry of his own door, it is an intolerable weariness to know of a whole society wasting its hours in the very bosom of untasted blessings. As it is said (and a little figuring proves it true) that without more crowding than already prevails on the Island of Manhattan, the entire population of the globe could be got into the State of Delaware. Doubtless with a little extra squeezing, it could be got into the State of Rhode Island. What a waste of an organism we are, to strain the resources of so small a world! To think of exhausting our abundance were as crazy as the ambition of the god of the sea when he attempted to swallow the great ocean. To think of air — mountains to climb, trees to hew — and tools at hand in vast prodigality. And yet the spectacle is presented of a human race struggling for breath amid oceans of air — for a mere foothold in a world all space. It were enough to make any humane creature weep and a devil burst his

with laughing! Why, the entire régime proposed in the preceding chapter — a régime which, I doubt not, looks nothing less than ambitious to many of my readers—was, after all, only a manœuvre toward securing for the individual a little preliminary, tentative elbow room; only a proposal that society beg of itself a small allowance of its own birth-right of air, sun, water, activity, repose, excitement, etc., which we are so diligently allowing to go to waste.

One kind of discrepancy involves another. As we absorb our life from the universe and then as we breed it, so will we be. To what different purposes we have done this, may be seen in the awful discrepancy between a lop-headed tenement-dweller and a crystal-brained astronomer. Can these two creatures be of one race? Even from the anæmic astronomer to the full-blooded gladiator, it is almost an equally far cry; but farther still from any of these to the great Gladstone, who was astronomer and gladiator in one. Yet Shaler believed — and so, therefore, may I be allowed to do — that all the free men of the millennium will be as far above Gladstone as Gladstone is far above the tenement-dweller. Speed the day.

Meanwhile, what force shall be sufficient even for the immediate purpose of budging our neighbours and winning elbow room for ourselves?

Archimedes sought a place to stand on. We have just furnished that in the previous chapter—a *bâtiment*. Our difficulty is not the foothold, but the force. How shall we budge our neighbours? I am quite sure it will not be by the wealth of a Lais, even were that multiplied seventy times sevenfold. Not even in the boards of education do I think we shall find the force, though they may furnish a fulcrum. No, nor yet do I think we shall find it in the force of public opinion, since it is the public itself that must be moved. Our force shall be a much more modest one than any of these.

Let us hunt it through three of the following chapters. These shall deal with obstacles and incentives.

Let us, then, in two chapters, expound the method of its application.

Then let us—for the heartening effect—in one last chapter, to imagine the big harvest of the future.

## XV

### FOOLS

The Widder Douglas always told me the earth was round like a ball, but I never took any stock in a lot of them superstitions o' hers, and of course I paid no attention to that one, because I could see myself that the world was the shape of a plate and flat. . . . But I had to give in now, that the widder was right. That is, she was right as to the rest of the world, but she warn't right about the part our village is in; that part is the shape of a plate and flat, I take my oath. *Huckleberry Finn* (after being in a balloon).

Continued Mr. Finsberry . . . "I do not know if you observed that (as you passed the hay-cart man) you took your left?"

"Of course I did," cried the carrier, who was now getting belligerent; "he'd have the law on me if I hadn't."

"In France, now," resumed the old man, "and also, I believe, in the United States of America, you would have taken the right."

"I would not," cried Mr. Chandler, indignantly. "I would have taken the left." *R. L. S.* in "*The Wrong Box*."

**T**HE immediate obstacle is the same old human weakness. For there are still types of man that will openly admit (1) that ninety per cent. of us have at least potential disease, even if unerupted in diagnosable form; (2) that our lives must therefore be either honeycombed with hygienic ineptitudes or vitiated by two or three fundamental blunders; (3) that nothing customary is presumptively quite free from taint; (4) that we ought always to be open to salvation from the toils of our inherited customs; (5) that some portion

of such salvation always lies hidden in the b  
 of our own generation's exceptional men, v  
 for posterity's acceptance after *we* shall be  
 (6) that Metchnikoff and Chittenden are scie  
 and that Fletcher is at least a gentleman  
 who yet, at the first glimmer of hope on the  
 tains of the East, can only jeer at the embar  
 sun.

This is that ribald thing which calls itself  
 mon sense. Properly so. It is unfortunate  
 these words ever came to be applied to that  
 type of wisdom which underlies the Ba  
 principle and has redeemed mankind; for, lit  
 what these words signify is that blind faith  
 obvious, with which the Baconian princip  
 always been at war. It is the colossal fat  
 this literally *common* sense which has been th  
 of the world from the beginning. It has  
 balked at the labour of climbing high  
 among the trees to receive the convictio  
 they constitute a wood. To be sure, it wil  
 with much gravity to an abstract thesis  
 if reduced to practice, would be subversive  
 morals; but, confronted with a proposal m  
 sober earnest, however non-essential in cha  
 (as, for instance, that we alter the cut  
 shoes), common-sense will fly out in a p  
 and stagger you with the truly unanswerable

ment: "Why, sirrah! This that you propose is a thing never yet heard of." Not infrequently our mother Nature would find this argument as true as that of the solemn rustic who averred: "The English language is good enough for me — it's what the Bible was writ in!" And let us not forget, in justice to this wise faculty, that it shook its wise head when tubercular patients were put out in the snow, and in 1492 swore the world was flat, though all the world went round the world.

The most recent illustration (doubtless to-morrow will bring forth a new one) of the perennial tussle between common-sense and science is furnished by the story of the hook-worm discovery. Hook-worm or laziness — which? Science says: "Laziness is an epithet. It expresses the way in which you are struck by the outward appearance of a fellow-creature. It has no exact meaning. It offers nothing for analysis or hope. Hook-worm, on the other hand, is a real entity — an organism — definable, susceptible of analysis, open to attack, promising hope." So Science. Now strange as it may seem, common-sense makes use of almost the same terms, but to precisely the opposite effect. "Laziness," it declares, "is a well-known, unmistakable thing; a real thing; a tangible thing; a thing you can kick and cuff. Hook-worm, on the other hand, is a figment —



one of those vague, fantastic terms of science, which sinful men are always inventing to cover up the kickable and cuffable defects which they hate to acknowledge." So common-sense. And until dollars were put into the enterprise of fighting hook-worm, common-sense had not left off laughing.

Now, when common-sense gets into its motley, it becomes as disconcerting as Tittlebat Titmouse in Parliament.

When the endurance records of the nine students were published, one editorial voice was heard thus: "Why, certainly! We have yet to hear of a single dietetic experiment since the world began that has failed to net its beneficiaries exactly 100 *per cent.* of endurance." After the report of the tests had been really examined and found invulnerable, the sententious jockey (not the same one — we are only personifying the whole brotherhood) capered and grew dialectic. First, he deplored the loss of time involved in such extravagant chewing. Assured that this was compensated by a more speedy appeasement of the appetite, he roared with affected pain that then he must *not only* spend double the time at chewing, but he denied a "square meal" into the bargain. Reminded that that particular geometrical attribute of a meal by which he set such store is simply a matter of his own satisfaction, and that such

atisfaction is still to be allowed him, he hastily crumbles up again to the top of his ladder of antics, comes tumbling down through the same series of stale evasions, and strikes the bottom with a louder whoop than before. "And besides," urges he, recovering his feet with an air of mock piety, "to be able to stand for an hour like the nine college boys, with horizontal arms, constitutes no part of the object of life." (Mark here he juggle — the sly evasion of the perfectly well-understood purpose of the scouted posture; not an end in itself, but a symptom of endurance; which, in turn, only stands symbol for increased powers of both work and play; which, taken together, it is perhaps not revolutionary to assert, constitute some part of the object of life.) Next, he throws in a few concrete suggestions — those deadly weapons of smart debate — contrasting popular fancy articles of diet with a supposititious régime of fruit salads, and affecting to condole with the subjects of the experiment for their deprivations. Here the subtlety — if jockeying may be called subtle — is to ignore the opinion of the subjects themselves, who had been singularly unconscious of their grievance, and, indeed, imagined that they were having a positive rejuvenation of the faculty for food-enjoyment.) At last he concludes — this plain, unassuming man in the

street — with a burst of plain, unassuming eloquence on his own part: an eulogy of a full rather than a long one; forgetting that your ordinary genuine Struldrugs are young men, and perhaps not knowing that Humboldt, who resurrected his health by the adoption of such light as his time afforded, lived both a long and a full life: not with the fulness of toxins and other sensual distractions that cramp the worker into one snug corner of his earthly tenement; but full with the fulness of great labours carried out in a clear space; so that he openly claimed for himself average life multiplied by four: two in duration and two in activity; or two in length, and two in breadth.

All this adversity of prejudice, even when disguised by humour, is in fact nothing but a *perversity* — a feebleness of the reasoning faculty, due to the huge failure of education. It is a sorry commentary on education that a college graduate, hearing that Mr. Fletcher was free from stiffness after his epoch-making performance on a bicycle, could reflect no more skilfully than to ejaculate: “Ha-ha! The man’s *endurance* may be phenomenal — *that* I’ll admit for argument — but everybody knows that *stiffness* is the consequence of exercise! Ha! ha!” Not otherwise did the young society Miss profess to understand (oh! quite w

the mooted question of how electricity is obtained: "You just press a button," said she.

But there are objections far more refined than the crass common-sense (or stupidity) of the humourist. There is to be found in the world a furtive literary affection for disease as a good old fatalistic inconvenience we could not get along without. Perhaps the devotees of this sentiment would grant that, without a few people of at least temporary soundness, there would be no singers, and, without singers, a much narrowed field for the art of musical composition. But, before too hastily deciding to renounce the possible advantages of disease, are there not other arts that merit consideration? What would be left of biography, for instance, should mankind suddenly go sane and afford us no more of those picturesque but certainly hypochondriac and filthy Sam Johnsons of whom we might continue to say: "He was overtaken by one of those mysterious visitations which baffle science [note the exaltation of science, for literary effect], and after a lingering illness in the course of which his friends were moved to tears by the spectacle of his sweetness and patience—etc., etc." Here, as in other crucifixions, it is the interest of the artist of which we are so generously tender — not the interests of Johnson. Alas, gentle Nero!

would the cruel reformers of *thy* day have thus attempted to deprive thy heart of its melodious dole over thy pitiful, burning Rome!

One literary gentleman takes refuge in the position that man has risen too high in the evolutionary scale to be caught eating with his attention deliberately directed to the enjoyment thereof; although the only alternative to Nature's holy institution of enjoyment is cumulative misery through the non-secretion of digestive fluid; and the only alternative to the wise and deliberate enjoyments of natural mastication, are enjoyments that are *négligée*, and hence, under civilized conditions, unclean.

But the most daunting adversary is the affable citizen of the world who grants both the premises and — yes — the *conclusions* of your logic (being himself logical), and yet discourages the urging thereof upon the world as a needless expenditure of enthusiasm. “By all means, let all people be as well as possible. *But . . .*” I cull these words from a sprightly essay which, by indirection, seems to deprecate all this pother about health. For after the “but” there follows a spray of merry and fugitive sentiments (“catch me if you can”), all tending to the brave conclusion that a man may fairly want some other things quite as much as he wants health — even at the expense of health.

Doubtless this is a proud — even a lofty consideration: that health can be treated both as a matter of degree (like money) and as a piece of private property (like a horse and buggy or a windfall) with which a man may do what he will. Yet what shabbier individualism, what cheaper betrayal of trust! Nay, I withdraw the words, since the writer who has wrested them from me was not really in earnest. But many other men *are* in earnest when they fail to see society and generation as one organism; reckon health as thus beginning and ending in the reckoner; and claim the prerogative of selling it away from its rightful beneficiaries; namely, the unborn offspring whom they cannot now consult and to whom they cannot afterward make restitution. Restitution in advance is the only rational programme.

U. S. N. B.

## XVI

### SOULS

**R**ESTITUTION in advance!

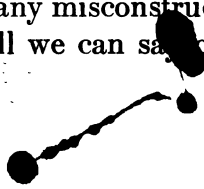
Let there be no fooling. It is not a small prize for which we are contending — not the prowess of the bruiser — not the vocal organs of the *prima donna* — but nothing less than the souls of men. Doubtless, the affable citizen of the world is working for the same object. You may spy him upon public platforms making his polite effort to save mankind with words; urging so-called ethical reforms upon society; asking, not that it eat, drink, and carry itself in a manner calculated to work changes organically, but just that it change, like an Arab on a wishing-mat. Nor is this procedure to be altogether condemned. Wishing can really do much for the soul. But its more fundamental business is with the body; and the body must have protoplasm before it can begin to wish.

Let us not here consent to be dragged into the nauseous debate of body *versus* spirit. It is freely granted that either of these may in turn be cause and either effect. Brave spirits have mastered

bitter handicaps of physique; and (with Henley) let us "thank whatever gods may be" for the comparative captaincy of our souls. The point is that if the soul be not part and parcel of the body, it is as dependent thereon as if it were part and parcel thereof; and for practical purposes there is the utmost propriety in applying the term "health" (or "salvation" if you will) to both as if they were one. Even the most rabid supporter of the claims of words and not protoplasm as the fundamental healing principle, will perhaps not deny that an *insane* person is ailing with protoplasmic impurities, and not accountable for the moral obliquity of his acts, neither to be saved therefrom by verbal persuasions. Time was when all diseases were regarded as whimsical visitations, not to be escaped when they chose to descend, unless by propitiating the deified Whim. After civilization had found a *rationale* for most diseases, the civilized savage still clung affectionately to what he was pleased to call "consumption" as at least *something* arbitrary, causeless, and inevitable. This, too, being now relegated to the great category of things that have causes, the best of us still retain a vague superstition about insanity as lying somehow outside of that category. Yet not a little of insanity is now known to be due to toxins generated in the blood; blood, remember, generated



by the joint action of lungs and stomach. If diet, then, may, through insanity, be wholly or partly responsible for salvation even of the soul — so far, at least, as the soul can maintain enough beauty and dignity to keep itself out of an asylum — if this be so, just where shall we draw the line and declare: “Up to this point, spiritual well-being is independent of the trammels of base clay; here is the precise boundary between that viciousness which is wicked and involves guilt, and that viciousness which has a physical cause and may, therefore, be prevented by the removal of the cause?” Is it at ill-temper that we propose to give over our search for causes? What, then, shall we say of the boy whose distressing bursts of rage baffled his parents in the full exercise of all the arts of spiritual persuasion! “Be a better boy,” he was adjured; “*do* be a better boy.” But not until a surgeon with a knife was so much an infidel as to find and remove an obstruction in the boy’s nose, did his bursts of temper come to an end and himself become in truth *better*. We all admit (humorously) that a man’s philosophy completely reverses and contradicts itself from day to day, according to his daily degrees of fatigue. Just what is the difference between the humour and the earnest of this? How many misconstructions of Jesus Christ may not, for all we can say or see, have arisen in



earnest, borne irretrievable murder for fruit, and again fallen into decay, all in concomitance with morbid or wholesome modes of physical life, according as these, for inscrutable reasons, became socially stereotyped? Is the worthiness of our reception of Christ dependent upon the logic which we apply to His doctrines, or is it dependent rather upon our *fitness* to apply a worthy logic? And if upon our fitness, upon what, in turn, is that fitness dependent? "Behold there went forth a sower to sow, . . . and some (seed) fell on stony ground." Unraveller of texts, will you not take this stony ground into your charity; direct toward it a discourse, not obvious and vituperative merely, but critical and explanatory; and the explanation not going in a heart-sickening circle, terminating in the bright idea that the ground, forsooth, is stony, but daring to peer beneath the surface into the awful face of the slow geologic laws which somehow cropped out with stones and barrenness instead of souls?

That posterity have at least the benefit of the doubt — that is to say, that posterity inherit the utmost fitness that we can hoard for it in our reproductive bodies — surely this is a procedure worthy to be undertaken in the name of Him who declared for more abundant life. For if the soul is not in very truth physiological, its *birth*, at least,

is physiological beyond the scruple of a disdainful doubt; and physiological improvement—or, rather, spiritual improvement asleep in an improved physiological chrysalis—is the only kind of improvement that we may be essentially sure of transmitting. No creed, whether speculative or practical, can be inherited except in a very figurative and roundabout sense. Creeds may, indeed, through tradition, *accompany* the march of generations; but they must accompany it on the outside; they do not pass into the organism. And unless something does pass into the organism, putting the child at birth on a higher level than the parent enjoyed at the parent's birth, the labours of your spiritual exhorter must begin with each generation as low down as it began with the preceding generation. It is like sweeping back the ocean with a toothpick broom. It is true that from some pulpits we have the rhapsodical assurance that man, or human nature—but with no organic influence specified—is the chief factor that changes under the influence of alleged progress. But before we can put much faith in this assurance, we must be prepared to believe that, if all the knowledge which has been accumulated since the thirteenth century were suddenly wiped out of recollection, and our present generation, unchanged in all other respects, were suddenly cast back into the mould of thir-

teenth-century institutions, we would continue to borrow our behaviour from the twentieth-century fashion; not persecuting as in the thirteenth century; not burning at the stake; not oppressing the serf; not sallying forth from baronial castles to pillage the valley; not putting the gyves on Isaac of York. Were this logical experiment tried in the most candid corner of every reformer's imagination, perhaps those reformers who are more reverent of themselves than of history would be the less ready to abolish the restraints of existing political constitutions.

What is it, then, that constitutes our advantage over the thirteenth century? Is it constitutions alone? Have creeds no part in our closer outward approximations to the Golden Rule? Yes, they have a part; for creeds are of the same nature as constitutions, and both are the product of *knowledge*, reinforced by *memory*. The more we remember of experience the more clearly we see the impolicy of disobeying the Golden Rule. The more considerations are presented to the mind's eye, the less disposed we are to do evil.

Is this external defence all we concede to creeds? Not necessarily; for if creeds be allowed to influence conjugal selection, they will be followed by a kind of conscious evolution, whereby the type will conform more and more closely to the ideal set up in the creed. Conjugal selection may doubt-

less enhance any aspect of a man it will. If conjugal selection go on the basis of vocal gifts, and at the same time make a deliberate exclusion of character, the result may be a race of operatic profligates. If conjugal selection go on the basis of big muscles, and at the same time make a deliberate exclusion of character, the result may be a race of fat-headed prize-fighters. But what about the converse? If conjugal selection (here is the rub) go on the basis of character *alone*, making a deliberate exclusion of vitality, will the converse of the other two cases hold good? Will character improve from generation to generation? We venture to think not. For a few generations, increments may thus be added to sheer goodness; but, after a few generations, goodness itself must dry up and wither for the mere want of soil and nutrition. With the progressive loss of vitality, the bloodhounds of toxin may seize their opportunity, overtake progressive goodness in the brain, and pull it down. When knowledge, or creeds, or goodness, come into competition with poisons in the river of life, the victory is to the strong.

What I plead for, then, is the incorporation into the creed, of vitality as the most essential tenet.

What the body can do to kill the soul is being found out. What it can do both to preserve and to evolve the soul has never yet been tried.

## XVII

### MEN

*And the elements  
So mix'd in him that Nature might stand up  
And say to all the world, This was a man.*

**N**EVER tried? Once it was tried, and with abundant success.

It is curious, with all our admiration of the Greeks, how perennially we go on missing the real point. In no way was their civilization inferior to ours. Indeed, in every department of human endeavour in which they have competed they have put us to open shame. Of Christianity they could not be expected to know before it was founded. Corporate enterprise is a department in which they could not be expected to compete, for their small and fruitful country they had no need of it. In music, they do not compete, for the same reason that their records in that art have been irretrievably lost. But in sculpture they have competed, and they have beaten us. In architecture they have competed, and beaten us. In literature, they have competed; and, in literature, from what-

ever side we consider it — lyric, dramatic, playful, tragic — they have still beaten us. Likewise, have they beaten us in the cold achievements of pure intellect. Of this universal superiority there must be a secret. Shall we look for that secret in the Greek climate? No; for there is a mixed race still occupying the same territory; and, all around the earth, there are many peoples living in the same zone, not one of whom can be mentioned in the same breath with the Greeks. Shall we look for the secret in the happy immunity of the Greeks from that vast load of undigested and uncoördinated knowledge which has accumulated since their times? There may be something in this. But the most conspicuous difference between them and us is a difference of physique; and here, one may hardly doubt, is to be found the secret of their practically universal præëminence, still untouched and unquestioned after twenty centuries.

But after all, it is neither to the body nor to the spirit of a man that we bow. To sheer virtue we measure out conscientious praise; to physical brilliancy we accord quick admiration; but it is only to that incarnate manhood in which both are indistinguishably blended that we yield unthinking and delighted surrender, like the spontaneous homage which a child pays to his father. It is a

priceless advantage — this cosmic magnetism. Of Walt Whitman it was said (and the same could be said equally of Henry Ward Beecher and of many other compelling characters): "One feels that he must arrive at his results rather by sympathy and absorption than by hard intellectual processes — by the affluence of power rather than by direct and total application of it." His form, it was said, was "surrounded with manliness as with a nimbus," and breathed "in its perfect health and vigour, the august charm of the strong." Moreover, these blended qualities found expression in a fine voice — versatile, rich, sounding out of a deep bosom.

Perhaps the saddest feature of modern intellectualism is the passing of the human voice — that physical but most magical feature of nobility, in which the mysterious total of a man ought to be figured forth as plastically as if in ether. Two incidents come to mind. A clergyman of keen spiritual perceptions, but with a body which a Greek girl might have broken across her knee (even his twentieth-century wife looked able to do that), was trying to persuade an amiable audience that warfare should stop. When he began I was of the same opinion; but, though his arguments did not want for cogency, the longer I looked at him and fell under the spell of his feminized tones,



the more I began to think that war was not such a bad institution, after all. His voice ruined his argument. I could not believe that he understood the wants of a race of men; and what he advocated for the race of men, therefore, I could not but hold under suspicion. The second incident occurred in the streets of New York, by night, in the downtown district, nearly deserted at that hour. From a doorway, where she had been crouching in dishabille, a woman was being removed. This woman was young, and, when her hair was put in order, good to look upon; not alluring after the cheap manner of Fifth Avenue, but plainly handsome after the royal manner of primitive creatures. But it is the officer for whom I would engage your attention. In everything but stature, he is different from other policemen; like others, a giant; but, unlike others, fit in every member — all bone and muscle and calm power, and, best of all, a man of grave features. It was he, with his large, gloved fingers, who had put the dishevelled hair in order. Race of sheer man that he was, no woman could have got at the situation more intuitively. Without embarrassment, he remarked on the poor creature's good looks. No one for a moment interpreted that remark in any insidious manner. It was an appeal to self-respect. Little by little, as he found it out

from her own words, he seemed himself to be telling her what had gone wrong: some sort of misunderstanding at home — then a misstep — then an attempt to forget with drink. With a tremulous prayer for death she gave an implied consent. ("Come, see a man which told me all things that ever I did.") They walked slowly away; he, in a deep, rough, reflective voice advising her to choose home rather than the station-house; she protesting in agonized monosyllables that she had no home, and clinging to his big fist for honest, Christian chivalry. A smile that had at first been indulged by two men of the world standing by, gradually left their faces, and suddenly, gazing after the huge, cosmic apostle, they began to exclaim together with some heat of admiration: "That's no ordinary copper — by God!" No. It was a man in whom the elements were mingled, and whose unity breathed an august charm.

Lastly, then, if the secret of Greek superiority was the Greek body, *the secret of the Greek body was the ideality with which the Greeks invested the whole man.* Conscience may do much; but sentiment will do more. It is only a romantic interest in all 'round health for its own sake that can make men *care* about being healthy; and that is the task of the reformer — to make men care. It is entirely a

question of sentiment. When health is a piece of personal pride and a part of patriotism, then the world will be transfigured.

Here, at last, is our force. With a place to stand on and a force to work with, we may now begin to plan reforms — win elbow room from society for the mutual benefit of society and ourselves.

## XVIII

### PIPPA PASSES

#### THE STRATEGY OF REFORM

X

**I**N PRECISELY the present juncture, in the year of our Lord 1910, arises a special need for the romantic, physical ideal. Toward a certain limited improvement in health, progress has already been made — indeed, remarkable progress — and without the assistance of such an ideal at all. But a point has now been reached where the obstacle to further progress is increasingly baffling. And if we tally the progress, hunt out the obstacle, and plan a campaign for the future, we shall find that the next stratagem required is the very ideal hitherto overlooked.

The average duration of life — now forty-five years — has actually doubled in three centuries, and is still increasing at the rate of fifteen years a century. Startling figures; but there is a flaw about them more startling still. For the improvement they denote *has been confined to ages under forty*. It is entirely under that age that

inroads have been made on death-rates; above that age, the death-rates have shown no signs of yielding; if anything, have grown more grievous. Why is this? Why is it that, at precisely the period of life when health becomes most indispensable for life's major duties, the progress toward health comes to an abrupt halt? Is it not because the enemies of life which have hitherto engaged our attention are those that can be disposed of *without disturbing the personal prejudice of adult mankind?* Plague, epidemic, child diseases — these are alike matters which can be delegated to government and to the ministrations of organized charity, or to parents who look after their children and neglect themselves; whereas eating, acting, thinking, and marrying are matters of personal regulation, especially for grown men. The obstacle that intervenes at precisely this point is one that has, in the recent government report, been elevated to the dignity of a definition. "Subtle perversity," it is called — the subtle perversity of adult mankind. For, so long as a man sees science and government dancing on the already prostrate bodies of plague and epidemic, he applauds loudly. He even joins a society and himself shouts the word "health" till the rafters of the schoolhouse ring. But the instant he suspects these forces of having designs upon

himself, he curls his lip; and, on the principle that a horse may be led to water, the curl of his lip is found to be mightier than the loins of government and science combined.

Now, there must be a method of getting behind the defences of perversity, but clearly it is not a public method. Neither is it the private method now for the most part in vogue. The present method is for some humanitarian to stoop from his own elevation and, with main force, tug at mankind like a pygmy tugging at the fallen weight of a dead Cyclops. What can he do, thus by main force, but rupture himself and destroy at once the health he would bestow upon others? That the way to save others is to kill ourselves and then preach to the saved that, on behalf of still others, they go and do likewise — this were, in a geometrical ratio, to deplete posterity of the very salvation which we wish to bequeath. A sacrifice here and there, where there is honest need of it, deserves all tribute. But even with sacrifice the question is one of cost and return. That each man be as healthy as he can, is the most paying investment which he can make for the health of the commonwealth. Men will not yield to his main force. Men will not yield to his loud exhortation. But men will yield to his example, because they envy it. The main dis-

inction between the health of the backwoodsman and the health of the quiet crusader, should simply be that the latter knows the ground of his health, idealizes it, and keeps it so manifest that he who runs may read. He need not talk about it. Let him only become enviable — one of the charming men of his circle — a man of august charm, if possible; at any rate, a man able to do desirable things which obviously spring from his way of life — fight like a Trojan, and at the same time command those more subtle accomplishments of which mere bruisers are innocent, and the absence of which in mere bruisers has given health in later centuries a specious appearance of vulgarity. Thus, as a centre of contagious ideality, like Pippa passing, he may beguile the subtle perversity even of men over forty.

This ideality, moreover, is the very force which in chapter II we promised to disclose as the means of eliminating the unfit before they are born. For, let physical ideality once get seated in the bosoms of men, those who by coming together would be likely to beget unfit offspring will be held apart by a repulsion like the centrifugal force of the earth. It will be an unconscious repulsion. All that needs be expressly studied is the health of the living, and the health of the

unborn will take care of itself. Without any external manipulation, Burbank's achievements will then be exemplified in Burbank's own species.

But, for the living to encounter, there is a second obstacle, heavier even than their own perversity. It is the burden of our entire commercial organism. Before this can be made clear, a brief recapitulation of man is necessary — man as he is by nature, and man as he is in practice. The deepest fact about him is unity. This has been said before. But what has not been said (and it may seem a paradoxical assertion) is that the other name for unity is versatility. If an athlete were allowed no vent for his strength but in the act of pitching a baseball, his arm would first wax at the expense of his body, but his body would eventually prove a counter-drain upon his arm, and his arm would prematurely lose its cunning. And some such danger of lop-sided development besets our modern athletics. Or if a musician be narrowly trained in nothing but the technique of his own craft, he will never attain greatness in it; for great musicians are fashioned only out of great men. And some such danger of narrowness besets our modern culture. Or, if children are given no intellectual outlet but the three R's; if their faculty of imagination be not at the same time nurtured by poetry, dancing, drawing, or



the inventive exertions of a manual employment, the three R's themselves will suffer in consequence. The children, when they become citizens, will be the less qualified even to sell groceries over a counter. And under the blind influence of grudging taxpayers, it is some such danger as this which besets our primary education.

But look at the body alone. That is our main concern. Who can doubt that it was intended to run, leap, wrestle, fight, swim, climb, dance, and shout — a thousand muscles performing their appointed tasks of mutual yielding and resistance around a changing point of equilibrium — and none of them discriminated by the joyous captain in the brain? Such a man needs no osteopath to search out a single gland and manipulate it. Nature sends him an impulse to yawn, stretch, shout, or run a mile, and the danger is averted. Turn for a moment to his environment. Who can doubt that the eye of man was intended to rely, for its chemical reactions, upon colours predominantly green and blue, with an occasional splash of scarlet and gold; and upon shapes that are of the jungle — confused, mysterious, exuberant; that the ear was meant to vibrate to the surgings of wind and waves, the rustlings of leaves, the singings and hummings and chirpings of Nature, punctuated by an occasional uproar and a thunder-

bolt; that the lungs were intended to be penetrated and suffused by perennial oxygen; that the skin was intended to be bathed in alternating air and water, sun and shadow, heat and cold; that the consciousness was intended to ebb gradually with sunset and revive gradually with the slow dawn; and that all the hours of a man's day, aside from those spent in sleeping and foraging and loafing, were intended to be thus occupied? This is man by nature. But what is he in practice? Even sailors and farmers do not approximate such a condition of primitive versatility. The sailor pulls well enough on a rope, but his hands become so constricted that he cannot open them wide. The farmer grows muscular over a plough, but eventually he cannot straighten up his body and relieve his vital organs from their cramped condition. The mill-hand sits huddled over a lever and, over the lever, he contracts a vertigo, with the endless flapping of a single member. The college professor and the railroad president grow physically flaccid, and, even in their intellectual life, each overworks a single group of nerve centres, sometimes producing what might be called cancers of the mind. Our modern division of labour was invented, partly to accelerate the distribution of products — a noble purpose; but partly it was invented to

appease an illusory hankering for passivity instead of exertion as the chief means of pleasure. One by one, man has deprived his hands, his feet, his teeth, his vocal cords and thereby that very essential organ, his diaphragm, of their appointed offices. But there has been a retributory shifting, as inevitable as the law of conservation; a shifting of the undiminished total burden. For all his apparent ease, man has had to compensate by the overexertion of a single member, if he be a labourer; or of his mind, if he be an inventor; or of his appetites, if he be a rich man's son. Hence the sudden up-swooping within us of those thousand mysteries we call ailments — hence the dentist, the doctor, the osteopath, the Swedish agitator, the Turkish bath, and the other professional and belated correctives. This, then, our commercial organism, builded on the division of labour, is the burden wherein man's errors have been stereotyped and preserved. A thousand sky-meeting office-buildings in New York, a thousand foundries in Pittsburg, a million tons of steel railroads, and endless acres of banking rooms all over the land — these are its components.

How shall *this* burden be moved? Surely, here is a problem in sacrifice, a pretty opening for some Brobdingnagian busybody. Pray, give

us a photograph of the reformer at work with main force remodelling society. Compared with such an undertaking, to pick up the Matterhorn and bear it away on the palm of one's hand were a mere bagatelle. But can we not, then, by some constitutional amendment, pull our institutional fabric in pieces? Begin, if you please, with the telegraph; for the confinement necessary to the operation of that useful instrument is certainly helping to kill the youth of our land. Very well, promulgate your *fiat* and destroy the telegraph. The next spectacle will be a greater and more harrowing loss of life than before, through railroad wrecks. But destroy the railroads; the next spectacle will be universal famine and universal bankruptcy. But destroy the banks; and, if that is not enough, scatter our myriad populations to the sources of supply, where each man may provide his own sustenance. The next spectacle will be a reverted race of savages, *sans* books, *sans* musical instruments, *sans* every triumph of this intellectual being whose extinction even Satan could not contemplate without shuddering. No, not a link or a bolt of the crushing institutional fabric can thus be arbitrarily extracted.

But why is it that no external force can budge institutions? Is it not just because no external force originally builded institutions? Penetrate

institutions to the core, and you find their artificer — man. Penetrate man to the core, and you find his artificial principle — the wish. This is the mightiest force on earth. Desire, and not necessity, is the mother of invention. It is the collective hankerings of society, acting like the secretions of the coral fish, that slowly and toilsomely, through centuries, have sheathed us in institutions miles in thickness and heavier than the Matterhorn. We hankered after quick communication. Straightway the inventor gave us the telegraph; and, having once gauged our affairs upon the new contrivance, we have made the child of our invention at once a necessity and our master. But it does not follow that nothing can be done. Shall we consent that a little nation, extinct these two thousand years, shall continue to hold the record for combining what is good in savagery with what is good in civilization? No; for the same unobtrusive force which sufficed to build our institutions will suffice to remodel them. There never was a time when we did not want leisure and exertion and fresh air — only we allowed our hankering for quick communication to become dominant. Without renouncing our appetite for quick communication, may we not reinstate the love of leisure, exertion and fresh air in the paramount position? If the individual

whose collective wants created his enslavers, begin to want these physical advantages, and to want them *in a paramount way* — to want them badly enough to begin arranging his life with reference to them so far as his enslavers still leave him the choice — who can doubt the gradual loosening of the social strait-jacket and its eventual accommodation to the true mould of man?

But is not this, again, our romantic physical ideal? Yes; one force can do all; defeat “subtle perversity”; defeat the birth of the unfit; defeat the burden of institutions.

If any man be sceptical as to this unlimited efficiency of so unobtrusive a force as a new ideal — or, at least, a new wish — let him take notice that already the readjustment has actually set in. Already we are in a position to make a tally of two manifestations, decided and startling, both. Ten years ago a scientific idealist was talking with an architect. This scientific idealist saw the crusade against tuberculosis beginning to get under way, and he ventured to prophesy, as a consequence of it, that there would soon be modifications in the architectural craft. The architect was a man of solid sense, to whom the principles of his craft seemed as solid as the foundations of the Matterhorn. It was with

difficulty that he suppressed a curl of the lip. Nevertheless, after ten years, these two men came together again, and the scientific idealist had the satisfaction of hearing the architect mention certain new features of his craft — the same which the scientific idealist had prophesied — with the same reverence as if, by a law of Nature, they had been a recognized part of architecture from time immemorial. The scientific prophecy, however, he had entirely forgotten. Here is something for hope to feed on. Are not houses a very considerable part of the institutional burden upon which civilization has been so long unconsciously labouring? Their yielding is the first of the startling manifestations of the power of ideas. What is the second?

The second is nothing less than a change in the statistics. We have said that hitherto the improvement in death-rates has been confined to ages under forty — ages where, in order to achieve reform, it was unnecessary to disturb the acquired habits of adult life. But read this sentence from the government report: "While this report is being written," says the commissioner, "recent figures from Great Britain came to hand. They show that . . . the expectation of life at ages forty, sixty, and eighty during the decade of 1891-1900 has a little more than held its own."

as compared with the previous decade." In other words, there has been a simultaneous budgeting in domestic architecture and in the habits of life after forty — in institutions and in "subtle perversity" — compared with whose combined weight the Matterhorn is as light as a feather. And to what can we ascribe these changes if not to desire — a yearning toward the Greek ideal beginning to work like the coral fish?

Recently, the Greek ideal, or something like it, has found a spokesman in a Christian. Bishop Brent has published a book entitled "The Splendour of the Human Body — A Reparation." Here is a triple coincidence: houses have begun to model themselves upon health principles; statistics after the age of forty have, after many centuries, begun to yield; and finally the force that has thus begun to remodel houses and habits alike has found a spokesman in a Christian, and that Christian a bishop.



## XIX

### CREATING THE DEMAND

TWO OF THE AUTHOR'S MARIONNETTES HOLD A DEBATE

**I** SHALL now propose the initial manœuvres for reaching the millennium.

In Chapter X we imagined a business man who should erect a group of sacred minimums in his life — minimums of leisure, of exercise, and of sleep. In pursuit of his plan, he was tempted, one night, by the usual will-o'-the-wisp, a so-called golden opportunity, to burn the midnight oil. The next morning he refused to make up his loss of sleep by dodging the other exactions of his régime. He rose at the usual hour for his calisthenics and his cold spray. In the afternoon, Nature being imperative in her impulse to sleep, he screwed up his courage to the point of a bold resolution. He resolved not to fub Nature off with any narcotic or stimulative subterfuge, but (his clerk being on a vacation) to close his shop loyally and go home to sleep. On the threshold of his shop he collided with another golden opportunity; but, without

giving his resolution time to fail him, he referred the glittering object to his rivals along the same street. It got into the hands of a friend who loved him. The next day it so fell out that these two men — our man and the friend who had profited by his closed shop — took lunch together. It must be confessed that neither looked the picture of health. But whereas the friend was manifestly going downhill — a typical ferry-boat passenger — our man was making steady gains, and was aware of the fact; so that while his friend was languid and spoke in a husky, debilitated voice, our man was inclined to be sprightly, delivering his retorts like a cricket. After a few uncomfortable “hems,” the half-sick friend began abruptly to unburden his mind.

“Look here! This is really too much,” said he. “You know I approve of a reasonable devotion to health, but *closing your shop!* Man, that is just precisely one of those things which a fellow cannot do.”

“Cannot? You who say so are living proof to the contrary.”

“I! How so?”

“Did you not recently close your own?”

“When, in God’s name?”

“When you broke down and the doctor sent you away for six whole months, lest your shop find itself closed for good and all.”

"Oh, pshaw! You know *that* was necessity."

"Necessity? How can a thing be necessary which is impossible? Do you believe in an irresistible force and an immovable body?"

"Well, but you know what I mean. Quitting when you don't have to, doesn't pay. When *your* doctor sends *you* away for six months, you'll wish you'd been more faithful in the mean time and earned the money to pay for that compulsory interruption."

"My dear man, that's what I've been waiting to hear you say. It's the most exquisite example of getting the cart before the horse that a fellow could wish to tilt at. Don't you know it is to avoid just such compulsory long interruptions that I take voluntary short ones? It is my vacations and not my health that I choose to discount. And unless you follow my example there shall yet be two occasions when my business will take more than reciprocal advantage of your own closings; the first will be your next illness; and the second (pardon me), at your death. *That* will be a long closing. And though your family will perhaps appreciate your insurance, doubtless they would prefer keeping yourself; or perhaps not, for — yes, by Jove! you'll have to forgive me — I think your family has scarcely seen anything of you for the past twenty years."

“What? I take this unkindly. It sounds like a taunt, sir. Haven’t I lived as nobly for my family as I knew how? Indeed, I dare claim for my behaviour a bit of heroism. Suppose I had adopted your principles when, as a clerk, I earned a precarious living for my wife and baby! What then? And even when I began to earn a little more than I needed, I was not free to ease myself by doing half the work for half the salary. When I proved my value I could increase my income, but not my leisure; or (as I suppose you’d be pleased to put it) I could increase my monetary but not my real income — except such real income as money would buy — and the one thing in this world which money will *not* buy is leisure. Through competition, affairs have got gauged in that way, and we cannot change society.”

“All this I freely admit, except that you and I cannot alter society’s gauge. You’ve named the stumbling-block all right. Most of us *are* helpless, in a measure. In your clerical days you did only what you had to do. You preferred the chance of future wearing out through overwork, to the certainty of immediate starvation through discharge. But hasn’t that all proved bad economy — not bad for you only, but bad for society, as well? You are not serving society as you could, had

society been less hard upon you in the first place. If you were a slave, Society was a fool. Society may still be a fool, but you are no longer a slave. And now, with what there is left of you, don't begin to behave like the prisoner of Chillon. Don't cling to society's dungeon because you once found it brave to live in it, rather than die altogether. Indeed, if you are no longer a slave, why don't you use some of your freedom for persuading society to be no longer a fool? Perhaps it will the sooner ease up on some future generation of clerks, and not confine them forever to that old and shabby choice of three — bondage, vagabondage, or extinction. Instead of preaching dungeons and bleached faces to your successors — enlist your own clerks in the fight. By Jove! I have an idea! Man, let us corrupt all the clericals of the world to become vagabonds, until, like the Plebs, who encamped beyond the hills of Rome ——”

“Stop a moment, firebrand! The world has work to do. *I* have, at any rate. It's hard enough to get it done even now — even with the loyalty of the few who are not already vagabonds. What is to become of that work after you shall have sown your genial anarchy among the workers?”

“—until, I say, like the Plebs who encamped

beyond the hills of Rome, the workers be invited back on more tolerable terms. Work to do? This is nothing but your ancient philosophy of things as they are! Why! Things as they *were* aren't things as they are. Why should things as they are preclude things as they will be? It isn't an ordinance of Nature that material success must always come at the cost of broken lives. One change involves another. If we strike for leisure, our work will accommodate itself to that new condition. For one thing, the inventor may provide further economies; and these economies we may use, not to make more things, but to make more time. For that matter, many of the things we are now straining after with such maniacal eagerness are superfluous — even hurtful. Some day society will make jettison of a few of these. Then, again, not a few of our neighbours that are already vagabonds in the more hopeless sense may yet be redeemed, for aught you know, and lend a hand with the work remaining. Why! Here are three distinct economies discovered in less than five minutes: first there's more time through inventions; second, fewer useless things through social jettison; third, more workers through redemption. All this will not come in a day. But come, I believe it will, some day. It *must* come. Indeed, the first step toward it will be profitable even in a monetary

sense. Haven't we lately been told, in a government report, that not less than a billion and a half of dollars are thrown away in this country every year through just such breakdowns as yours? And the figure is outrageously conservative. Probably it should be three or four billions instead of one and a half. Now, how long do you suppose society's going to stand for that sort of thing? Already, here and there, factories are waking up to the economic significance of the goose and the golden egg. Some of them have voluntarily surrendered — what do you think of that? — *voluntarily* surrendered hours to their employees, with the result, calculated in advance, that they get more work out of their men in less time. This sort of economy is only in the experimental stage now. But some day it is going to be conducted on exact principles. Some day, every employer, with a text-book of physiology in one hand and a bank-book in the other, will study how to strike a balance between the two — how to find the minimum misery that will produce the maximum dividend. And after he's applied that idea to his employees, if he isn't already dead, he'll begin to apply it to himself. After that, there'll still be room for improvement; and the next thing business men will want to know is why they're *in* this game, anyhow. Then will be the

time to strike for real income instead of monetary — when men begin to notice, what I believe *I* have discovered already, that business is not an end in itself after all; that what we want of our factories — the only reason we have them at all — is to manufacture the means of that very health which we are now so diligently burning up to keep our factories going. Our factories really have for their sole *raison d'être* the turning out of things which minister to health, including the leisure wherein health can make some further use of itself than just to go on producing means again. Damn such a tread-mill! Look here, man! You have a son. You and I have got to get into this game early. Every breath we draw is helping to mould the customs of the world we live in. What I say is, let's fashion a world fit to control the destinies of your son and mine. Already *mine* has a body and an intellect for which you profess not a little admiration. I'm afraid I've been rather personal, to-day; but I must take one more chance of a misunderstanding, for it's the last time I expect to trouble you, if you don't relish my interference. I'd just like you to ask yourself why you admire my son more than the son of your own loins. My own influence with you may be slight; but that boy of mine has always been able to cajole you out of your eye-teeth — and I'll be whipped if it isn't



mainly because he's handsome, with his blood still unevaporated in his veins!"

Thus spake one insurrectionist — a rudimentary millennium maker. Meanwhile, his son was continuing the same circuitous attack upon society. Besides going into his professional career with the accumulated momentum of the "sacred minimums," when he came to choose that career, he put the gyves of commercial considerations upon all society. He approached the question with a prospectus in his hands; a prospectus which his father had provided, showing what the world had to offer in the way of occupations for a man of his attainments. It gave the figures, not only for earnings, but also for health-conditions and health-results. Among the several professions, therefore, which in other respects were fairly suited to his condition, he chose the one that combined the maximum education with the minimum enslavement; and among several methods of its practice, he chose the least poisonous; and among several places for its practice, the least unsanitary; realizing that, whether or not such choosing should circumscribe his field of influence, it would at least render that influence more intensive by enhancing the resiliency and poise and self-confidence — in a word, the charm, by which

alone men make impressions on men. When so many young fellows had followed his example that the less wholesome professions began to feel themselves comparatively deserted, these at once set about bidding again for the lost services by deliberately devising ways and means of appeasing the new appetite for health.

## XX

### VISIONARY

#### A FORECAST — AND L'ENVOI

**O**N THE first stage of my vision we are already standing. It is the same that we have just traversed. It may be called the stage of the "sacred minimum."

On the second stage I seem to see a family so vitalized by these principles as to send a shiver through the whole Cyclopean carcass of dead custom. Health is no longer on the defensive, building around itself a little breastwork of counteractive agencies. But those original agencies which gave the body its original beauty and made it forever dependent on them for its saving versatility of occupation — these have been reinstated in a dominant position. I mean that sport for sport's sake — not competitive, but spontaneous and universal — has become socially obligatory; has become a recognized department of conduct, applying even after the dismal age of forty. To Robert Louis Stevenson some Bel-

gian boatmen once said, "We are all employed in commerce during the day; but in the evening, *voyez vous, nous sommes serieux*"; whereupon Stevenson wrote down, and shared with the world, one of his sane little sermons of smiling indorsement. But, in my vision, it is the better part of many days, and not the fag ends of a few, that are devoted to these "serious concerns of life."

To these concerns, moreover, there is a new flavour. If sport has become less competitive and more spontaneous, it is because an ideal element has been restored to athletics. They do not so prevailingly minister to the hunger for a broken record at no matter what cost of abnormal development. Since no man can hope to run so fast as a deer, or jump so high as a kangaroo, or hit so hard as the hoof of an ass, there seems little profit in trying. But for sheer grace and efficiency, there is no creature God made that man at his best cannot excel. Grace and efficiency, therefore, the sheer art and exhilaration of movement — qualities too little fostered in our twentieth-century sports except rowing and running and skating — are receiving more attention. Strength is well regarded chiefly as it adds to these — never as it subtracts.

Perhaps, however, the most astonishing change is one which seems to have come over the Comic

Weeklies, those unerring indices of public sentiment. Men no longer find it necessary to defend themselves from the shame of a prevailing inferiority by joining in the hideous guffaw at their own expense. That generic sottishness which begot alike the shambling walk, the slovenly vocabulary, and the grosser forms of caricature has been superseded by a certain tincture of unashamed courtliness, and by a sense of humour less insulting to God and man. Without denying the ancestral claim of the beast, men have resurrected the concurrent claim of an erect God; and it is of this claim that they are the most fond of being reminded.

This may be called the age of the "sacred maximum."

Last comes the age of the sacred total.

The clear part of my vision is a vision of men. Naturally the institutions which form the mere background for men grow nebulous as the times advance. The mists which envelop these I can no more penetrate than a contemporary of Abraham could have predicted the dynamo. I am sure they are not the institutions of the savage, because our god-like minds have never relinquished libraries. I do not think they are the institutions of the Greeks, because our numbers and our vast

extent still require quick communication and fast production. But the one principle which governs all, I see clearly. It is the principle of anticipating the wishes of Nature. "Know Thyself" is a motto which has at last been conned and learned by heart. In the enterprise of happiness, man and Nature have come into full accord, as, long ago, they had come into accord in all his other successful enterprises. Man now includes man in all man's calculations. Having at last succeeded in piecing together the original plans and specifications of man, science has issued to the world the true image of man; and with that image the social consciousness has become so imbued that, to the mould of it, institutions have begun to cleave as a garment.

I do not know what has become of the institution of division of labour — that is, the division between one labour and another; but the division between labour and impulse is greatly softened. The art of producing necessities has taken a lesson from the art of producing poems and pictures. Efficiency being, in both arts, the prime desideratum, and efficiency always having been quadrupled whenever mood and occupation have kept hand in hand, it is no longer held *always* necessary that a man do one thing at a particular moment, when, at precisely that moment, he is

under an impulse to do another thing. Impulse, which leads a man to the pool when he is hot, and to the fireside when he shivers — this barometer of Nature, which had long been restored to its office in diet, has now received a degree of recognition in all other occupations as well. To what extent, even in the men of the millennium, impulse must continue to be distrusted; to what extent concurrence between the impulse and the employment of one man must be sacrificed to concurrence between that man's employment and the employments of other men; that is, to what extent individual efficiency must continue to be sacrificed to collective efficiency — all this is a part of what I cannot decipher. It is enough for me that, through a better control of environment, and also, no doubt, a better control of impulse, the wasteful clashing between the two has in fact been mitigated. Though sports, the sober business of primitive men, continue to have an independent existence, it is no longer left to sports alone to provide recreation. Civilized men, also, have learned how to re-create themselves while they *work*. The very principles of primitive occupations — the principles of exertion, rhythm, versatility — have been reincorporated into *every* sober business — into the very technique of banking and of farming. It is this mitigation which

has gained for the age the name of "sacred total," a total which comprises brain and muscle — comprises labour, impulse, and sport; one for all and all for one.

But, be it as it may with the institutions, at least with the men to whom these are servants and no longer masters, I am perfectly familiar. If I cannot imagine the machine which has superseded the dynamo, at least the men who have superseded *me* I apprehend through actual fellowship — an inward fellowship that is older than Homer — as old, indeed, as the Milky Way. One of these superb fellows I even recognize, feature for feature; my own son, after many transmuting generations. It is not without wistfulness that I contemplate him; for I know that when he looks back upon the loins whence sprang his ancestral line, his gratitude must be mingled with pity. Few of my contemporaries would dare inflict their pity. Indeed, some of them even go so far as to think me a kind of athlete (save the mark!). But I shall take the pity from a winsome giant; so endowed, so environed, and so reared that he can actually do those things which I can only yearn to do: not only run, leap, fight, swim, climb, dance, shout, all with an elasticity and adroitness — a beautiful and unconscious economy — which outrival the best prize-fighter of Olympia



and the grandest oarsman of Yale in the consulship of Plancus; but also love, debate, create, look well, laugh, be above the clutch of small annoyances, lend a hand, make life in middle age appear the bright crystal of romance which it appears to the unfatigued eye of a child looking upon his first sunrise. That supreme sense of mastery over self and over circumstance — a feeling which visits me for half-a-minute in a year — lives in his bosom the year round. Like quicksilver, life has been poured free into his veins, out of the beaker of the crystalline Universe. Every highway of his resilient mind and body is as clean as the tone of a bell. The autumn and the sky and the love of woman and the sense of God and of God's vigorous mysteries — all these flow through his fine nature like a sea of winds through the Æolian harp of a pine woods. Not that his life is all ecstasies. He has his tranquil moods, also, and even his sweet melancholies. He is too complete not to be a mystic in the presence of what is in its nature mystical: sunset and death and disappointment; for there are still to be disappointments — there must be, in a world containing more than one force. But of mere depression and inefficiency — the wastefulness of mere pain where pain was never meant and can never profit — of all this he is incapable. His

courage, his happiness, his arts, his virtues, are all nourished out of one principle; namely, his vital reserve. To be brave, he need not wear himself down to the bone; he simply knows there is nothing in the Universe big enough to hurt him. To be happy, he need not force to the lips a rueful smile in order to mitigate the sincere expression of the heart: he is simply and constantly and head-over-heels in love with life and all it brings forth. Has he an eagerness for difficulties? It is not the lame child of conscientious scruple. Has he a score of arts? None would apotheosize the sallow and the tired. Has he a love of doing good, where the same need not be officious? This, too, is precisely of one piece with his love of rivalry — a spontaneous fruition of power.

And what a man receives, this must he give forth again. The voice of my millennial youth is the last and, in a way, the very best feature of all; for it is the mirror of all. Expression is the first and the last necessity — nay, the first necessity and the last luxury; and not only can this man, like a divine blacksmith sweating gaily at his anvil, fashion for utterance the melodies which the universe is constantly teaching him; but, in his intercourse with kindred singers of the past, he is no longer confined to a kind of passive seeth-

ing over a book in a library; he is become, not the ear only, but the boon companion of those elder giants — Beethoven, Bach, Shakespeare, Homer, Phidias, Michelangelo—in whose ultimate, world-shattering motet, his perfect voice rises like one of the colours in the dawn.

*L'Envoi*

As I wrote the last words, an apparition of the average man laughed in my face. And with that I have tumbled through all the goodly stories of my apocalypse, and lie maimed in the basement, grappling with the average man — his scepticism, his apathy, and his ninety-nine ailments. For this I am not so sorry as I might be. It gives me an opportunity, in parting, to settle my grudge with the average man, once for all. There are two accepted ways of curing a sinner. One is to beguile, the other to upbraid him. I am not unmindful of the dangers in the latter, the more heroic course. To antagonize a man is not often to win him. But yet, there are cases in which a hearty insult may work reformation through the bitterness of it. The insulted individual may never forgive *you*, but also he may never forgive himself. The next time the opportunity occurs to him for repeating his sin, he may feel your gibe, and, if you are not there to gloat over him, with-

hold his hand. Now, some sins are only the more subtly influential through their very lightness. It is common logic that the man who smiles irreverently on prostitution, be he never so chaste in his own behaviour, encourages and spreads the evil. His influence is caught like pollen in the wind and sown broadcast over the earth. At the day of Judgment, every fallen girl will have the privilege to stand up and accuse him. If, when such a man is expecting you to join him in his smile, you surprise his fawning with a kick, he may hate you ever after; and yet, the next time he sees a crippled soul, the instant he feels his lips beginning to assume their accustomed curve, will he not wince and look round for the toe of your boot? The law of association will do its work. It is on this principle that I intend, now, to insult the average man — if only I can get beneath the insensitive hide of him. The sin of which I accuse the average man is in every way comparable with the sin of the scoffer at purity, and not less in the horror of its disseminated consequences than in the lightness of its giving forth. Every silver-haired mother, every not-to-be-spared wife, who has gone mad, or (almost the more pitiful fate) whimpered her life away in the pains of rheumatism, may stand up at the day of Judgment and accuse the average man; accuse him for his

every word or silence which has tended to perpetuate the average idea — the idea which accepts the average custom and the average transgression as if, like King James, these were, by their mere existence, somehow incapable of wrong. You may be the affable citizen of the world who smiles on health as a secondary consideration; you may be the literary dilettante who would keep Sam Johnson miserable in order to keep him picturesque; you may be the man who, zealous for his own victories over despair (and these I do not belittle) would draw the false inference that the hag that rides him is to be worshipped as a blessing in disguise; you may be the merely jocular individual who throws tabasco sauce on a supposititious fruit salad; whoever you are, the moment you open your mouth to utter one of your characteristic follies, please stop and reflect that you deserve stripes. Do not tell us afterward, when sickness smites your neighbour, that you did not know your tongue was loaded. I am not, after all, so very solicitous for any apotheosized boy a millennium hence (though for him I care much); nor am I so very solicitous on my own account (I am able to look after myself). But for the agony I have endured in standing by and watching the agony of others — the agony of loved ones — agony always irreparable and wholly to be

ounted for by the false assurances with which the average man is every day polluting the atmosphere — for this that I have endured, and for the fear of more like it, in case I ever be so rash as to be so brave as to invite a woman to venture her life with mine — for this it is that I chafe to punish nothing; to punish the elusive “insolence of death,” which knows nothing either of health or statistics, and yet, at this very moment, is confidently plying its trade, trying with its bellowings and cursèd antics to keep the ninety-seven per cent. of the 1,500,000 persons dying yearly in the United States, — trying to keep these in a condition befuddled about health that they cannot get quit of the world comfortably; yes, for all this will I lie cheerfully down from the top of my soft pillow, and, with the last word, if I may be so fortunate, leave a bitter taste in the mouth and a flush of anger on the cheek of the average man.

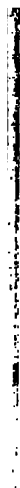
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## **CONDENSED RULES OF PERSONAL HYGIENE**

**With an index to the passages of the text (in Part II) in which they have been discussed at length. (Most of the rules have previously appeared twice in the text: once in the four-fold discussion, and once in the chapter on Régime. Such rules are here twice indexed.) Some additional suggestions are included.**





## CONDENSED RULES OF PERSONAL HYGIENE

| I. FOOD AND ELIMINATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Chs. IV-XII<br>(General<br>discussion) | Ch. XIII<br>(Régime) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------|
| <p>1. <b>EATING:</b> Contrive a <i>schedule</i> of meals least calculated to promote the overlapping of bodily provisions—i.e., the glut; but adapt it to your business schedule so far as you cannot adapt your business schedule to it. For the sake of <i>sleep</i>, if possible, have the last meal light and not too late.</p>                                                                                                                                                                                                          | 126-130                                | 241                  |
| <p><i>Rest</i> before eating, if you are tired; and after eating, rest again whether you are tired or not.</p>                                                                                                                                                                                                                                                                                                                                                                                                                               | 130-131                                | 234-235              |
| <p>Exclude utterly from the household all vicious things—hot <i>condiments</i>, and (if you accept the writer's argument) <i>nervines</i>.</p>                                                                                                                                                                                                                                                                                                                                                                                               | 131-133<br>139-182                     | 234-235<br>234-235   |
| <p>Use a <i>milk-ferment</i>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88                                     |                      |
| <p>Have every meal <i>balanced</i>, as to its threefold office, before it comes to the table.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                            | 103-138                                | 234-235              |
| <p>Allow but a modest <i>variety</i> in any one meal. Provide for the utmost variety in the procession of meals.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         | 109-138                                | 234-235              |
| <p>Other things being equal, give the preference to <i>hard foods</i>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 133-138                                | 234-235              |
| <p>With its task thus simplified, give the <i>palate</i> free play under the discipline of Mr. Fletcher's régime—admitting nothing to the mouth for which the desire is not positive (not mistaking restlessness for hunger); allowing nothing to escape down the throat until the sense of taste is fully sated; whereupon, being liquefied, the morsel will find its own way down without your assistance; and, finally, rejecting from the mouth any fibrous residue which has refused to liquefy. If you enjoy swallowing it, do so.</p> | 93-102                                 | 234-235              |
| <p>With the meals, little or no <i>water</i> should be taken, except as it enters into the composition of the food. If you are thirsty, drink—but not while food is in the mouth, and not very cold water. It is far best to satisfy thirst out of meal hours. <i>Drink</i>, therefore, on rising, on retiring, also mid-morning and mid-afternoon.</p>                                                                                                                                                                                      |                                        | 235                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                             |                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------|
| <p>2. THE TEETH: Brush them twice a day; use dental floss and rinse after each meal. (And remember the hard foods <i>supra</i>.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Chs. IV-XII<br/>(General discussion)</p> | <p>Ch. XIII<br/>(Régime)<br/><br/>238-239</p> |
| <p>3. ELIMINATION:</p> <p>(a) <i>by evacuation</i>: Promote adequacy and regularity by using sufficient laxative food — fats and fruits; by approximating the primitive posture; perhaps, also, by using Japanese seaweed, “ager-ager”; and in emergencies, by using the enema — not too warm — say 80 degrees to 75°degrees F.</p> <p>(b) <i>by sweat</i>: Promote this, when possible, by exercise. Where exercise is crowded out, but you can install an electric light bath, use the latter — drinking water copiously during the bath.</p>                                         |                                             | <p>236</p> <p>238</p>                         |
| <p>II. ACTIVITY OF RHYTHM</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                             |                                               |
| <p>The principle: Oppose work to sleep; oppose work to the breathing spell; oppose tension to relaxation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>183-191</p>                              | <p>237, 240</p>                               |
| <p>For the sake of both sides of the rhythm, learn to <i>interrupt</i> your work — or any other monotonous condition.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>200; 198</p>                             |                                               |
| <p>For the relaxation side of the rhythm get adequate repose, paying for its loss with a <i>nap</i>, a <i>day off</i>, or a <i>vacation</i>, but incurring as few debts as possible.</p>                                                                                                                                                                                                                                                                                                                                                                                                |                                             | <p>237, 242</p>                               |
| <p>For the exertion side of the rhythm, too, do not rely solely on vacations nor impromptu sports; but have daily <i>calisthenics</i> as well, lasting from ten minutes to an hour, consisting mainly of tortions and stretchings, directed mainly to the trunk of the body, and (for coördination as well as economy of time) involving as many members as possible in each evolution. For these and the <i>bath</i> see “Régime,” p. 229 <i>et seq.</i>, and either invent your setting up system or buy literature on the subject. <i>Deep breathing</i> should be provided for.</p> | <p>201</p>                                  | <p>229 <i>et seq.</i></p>                     |
| <p>For the sake of the <i>abdomen</i> and to avoid <i>portal congestion</i>, <i>walk erect</i>; <i>laugh</i>; <i>sing</i>; give every <i>chair</i> a convexity where it is to meet the small of your back; and in the office and the study, use chairs that revolve and tip.</p>                                                                                                                                                                                                                                                                                                        | <p>193-195</p>                              |                                               |

### III. ENVIRONMENT: SUNLIGHT AND AIR

1. **YOUR HOME** (apply as many of the following suggestions as you can. Seldom can a man apply all): Select an open, sunny site. So adjust its position as to insure a southern exposure for the rooms most occupied. Among these, have one that shall be roofed with glass, and on three sides walled with the same — opaque for privacy, and provided with revolving panels for ventilation — this for your *light and air bath*. Have windows that are ample, both in number and in size. For freedom from dust, construct the rooms with round corners; at least use such cleaning apparatus as will have the least tendency to stir up and distribute the particles. Of draperies, of carpets, and of upholstery, have the minimum. In the matter of a heating plant, indirect hot-air seems to be the best agent for ventilation; but, on the other hand, the sun is a radiator; heating the air relatively little, lest we could not live in it. You and your expert must work out this dilemma. Install a *humidifier*, or, at the very least, pans of water disposed under the various radiators. For artificial light use *electricity*. Some day there should be contrived a device which will keep indoor air in motion — lightly, irregularly, and from varying quarters of the room. Have a *slanting board at the base of the window* to deflect the entering air upward.

2. **YOUR CLOTHES**: Wear thickness enough for safety and comfort; but have *all porous* — outside as well as next the skin, but especially next the skin; have what is next the skin of *vegetable or linen fibre*; have all, as often as possible, white or of a light colour. Use a hat as little as possible — have it ventilated. Ventilate the foot all that decorum and the individual foot will stand.

3. **YOUR HABITS**: Be *out* as much as possible. Keep the *windows open* as much as possible — assisted by a deflecting board. Keep the *day temperature* as near 66 degrees to 68 degrees as possible at the coldest level — *i.e.*, the floor. As a means of *skin ventilation*, use your *sun-room* if you have one; otherwise, profit by the morning calisthenics.

Chs. IV-XII  
(General  
discussion)  
204 *et seq.*

Ch. XIV  
(Régime)

210-212

214-216

233

239-240

| IV. MENTAL HYGIENE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Chs. IV-XII<br>(General<br>discussion) | Ch. III<br>(Régime) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------|
| <p>Cultivate <b>CHEERFULNESS, COURAGE, and PURPOSE</b>, by auspicious <i>physical conditions</i>; by varied <i>emotional experience</i> (through art, literature, etc.); by doing <i>acts of affection</i>; by <i>autosuggestion</i>; by <i>thinking twice</i> before consenting to be vexed — and then not consenting; by <i>relaxing</i> under responsibility; by having a <i>plan</i>.</p> <p>For a part of the plan have an orderly <i>family schedule</i>. But if stupid routine is encroaching too far, introduce a <i>new method</i> — at least, dress for dinner. To promote good <i>table talk</i>; to <i>read aloud</i> in the evening; and not to neglect stimulating <i>society</i> — these are a few suggestions for the spiritual régime.</p> | 217-227                                | 243-245             |
| <p>CAUTIONS, ETC.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                        |                     |
| <p>Make all physiologic <i>readjustments</i> gradually.</p> <p><i>When under the weather</i>, improve your elimination; drink more copiously of water; retrench your nutrition; and correspondingly relax those very exertions which are embodied in your régime.</p> <p><i>When you are really ill</i>, however, do not shirk the doctor.</p>                                                                                                                                                                                                                                                                                                                                                                                                              |                                        | 246                 |
| <p>Except as they demand a doctor, bother not with <i>particular symptoms</i>; but expend your care in always manœuvring back toward a better fulfilment of the <i>four general conditions</i>; <i>i.e.</i>, proper diet for supplying the raw material of life; well-balanced activity for propelling and distributing the same; favourable environment for fostering; and an hygienic mind, both as the fruit and as the motive power of all the rest.</p>                                                                                                                                                                                                                                                                                                |                                        | 246-248             |
| <p>Special fatigue may be treated with a <i>very hot bath</i> lasting half a minute; and tired nerves may be soothed with a <i>neutral bath</i> lasting fifteen minutes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |                     |

